COMMENTS ON A RECENT VERSION OF PHENOMENALISM

By M. BLACK

1. Introduction

IN a recent paper Braithwaite attempts to provide a method for defining 'propositions about material objects' in a manner which would satisfy the demands of phenomenalism. ('Propositions about Material Objects', *Proc. Arist. Soc.* 1937–8, 269–290. Henceforward quoted as 'PMO'.) By 'propositions about material objects' in this context is understood such propositions as *There is a clock on the mantelpiece now* (p, say). There are general grounds for believing that a proposition such as p cannot be completely defined in terms of experiential propositions.[1] It is difficult to establish this negative thesis conclusively, although examination of the manner in which propositions about material objects and other 'secondary' propositions are used, and of the deductive relations between the experiential propositions and the secondary propositions, make it appear highly plausible. It is important, therefore, to test the strength of the thesis that secondary propositions cannot be defined in terms of experiential propositions by investigating any specific claims to the contrary. Such a claim is made in Braithwaite's paper: he claims to have shown not only that the proposition p can be defined in terms of experiential propositions, but also in considerable detail *how* it can be so defined. Braithwaite's highly ingenious attempt to salvage phenomenalism raises some interesting points which will receive incidental discussion.

In speaking of Braithwaite's paper as advocating the definition of such a proposition as p in terms of experiential propositions, I have been guilty of some misrepresentation. Braithwaite does not use the phrase 'experiential proposition' and I have reason to believe that he would prefer to speak of the meaning of p as being defined by 'certain experiential *facts*.' The obscurity of the last phrase can be removed to some extent, but I am not convinced that there is any significant difference between the two modes of formulation. I shall do a little violence to Braithwaite's presentation by reporting it as if he were intending to

[1] Cf. Ramsey's paper on 'Theories,' *Foundations of Mathematics*, 212–236.

define propositions about material objects in terms of experiential propositions.

2. Reformulation of Braithwaite's main contention.

Let us represent experiential propositions by systematically using the letter e, with or without distinguishing suffixes. Braithwaite, following Ayer, speaks of propositions being 'strongly' falsifiable or verifiable in contrast to other propositions which are merely 'weakly' falsifiable or verifiable. Let x be any proposition. Translated into our symbolism, the assertion that x is strongly verifiable becomes $(\exists e_i)\ (e_i \supset x)$, i.e. the truth of x is implied by the truth of some experiential proposition. Similarly the assertion that x is strongly falsifiable becomes $(\exists e_i)\ (e_i \supset \sim x)$, i.e. the falsity of x is implied by the truth of some experiential proposition. The assertion that x is 'weakly' verifiable, on the other hand, is equivalent to the assertion that its conjunction with certain other propositions is *strongly* verifiable by an experiential proposition which would not strongly verify the conjunction of the other propositions by themselves.[2]

Braithwaite agrees, with Carnap[3] and most other writers, that the proposition p, viz. *There is a clock on the mantelpiece now*, is neither strongly verifiable nor strongly falsifiable. The novelty of his position arises from the fact that he believes that some complex material object propositions of which p is a constituent *are* strongly falsifiable. Suppose I look at the mantelpiece and see that there is *no* clock on it now: let e_1 be the *experiential* proposition expressing what I see so that e_1 is a proposition expressed entirely in terms of sense-data or sensible experiences. For the purpose of this argument it can be assumed that such a proposition can be *described* even though the poverty of our language makes it difficult or impossible to *express* the proposition (cf. PMO, 285–6). Now p, says Braithwaite, is not strongly falsified by e_1. For my experience may be 'unreliable': I may be hypnotised into not seeing the clock which is there all the time, or I may be looking at the mantelpiece with one eye shut in such a way that the retinal image of the clock falls within the 'blind spot' of my active eye (PMO, foot of 274). Let r_1 be the

[2] An *exact* definition would need certain further refinements.
[3] Testability and Meaning, *Phil. of Science*, 3, 420–471 and 4, 1–40.

proposition that my present visual experience is reliable.[4] Then, according to Braithwaite, what *is* strongly falsified is not p alone, but the conjunction of p and r_1, i.e.

$$e_1 \supset \sim (p \,.\, r_1) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

$$\text{or} \quad e_1 \supset (\sim p \,.\vee.\, \sim r_1) \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

In words, if I look at the mantelpiece now and see no clock there then either there *is* no clock or else my present experience is unreliable. It is to be noted that r_1 is itself a proposition about material objects (my body, hypnotists, etc.) which can be neither strongly falsified nor verified by a finite set of experiences. But just as with p, certain other experiential propositions will falsify the conjunction of r_1 and another material object proposition. Thus

$$e_{11} \supset \sim (r_1 \,.\, r_{11}) \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

$$\text{or} \quad e_{11} \supset (\sim r_1 \,.\vee.\, \sim r_{11}). \quad . \quad . \quad . \quad . \quad . \quad (4)$$

where e_{11} is the expression of some other experience, and r_{11} expresses the 'reliability' of *that* experience. r_{11} in its turn will be neither strongly falsifiable nor strongly verifiable, but, like p and r_{11}, may be conjoined to another material object proposition (r_{111}) to form a strongly falsifiable conjunct.

There will be other experiences than that expressed in e_1 which will strongly falsify the logical product of p and a corresponding proposition to the effect that the experience in question is reliable.

Thus let 'e_2' = "I feel a 'mantelpieceish' feel but no 'clockish' feel 'on' it"

'r_2' = 'My present tactual experience is reliable'.

Then, by analogy with the propositions (1) and (2) above, we can write

$$e_2 \supset \sim (p \,.\, r_2) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (5)$$

$$\text{i.e.} \quad e_2 \supset (\sim p \,.\vee.\, \sim r_2) \quad . \quad . \quad . \quad . \quad . \quad . \quad (6)$$

And r_2, naturally, will satisfy relations such as

$$e_{21} \supset \sim (r_2 \,.\, r_{21}) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (7)$$

and $e_{22} \supset \sim (r_2 \,.\, r_{22})$ etc.

analogous to (3) above.

[4] In general, if e_i is an experiential proposition, 'r_i', the symbol consisting of an 'r' with the same attached suffix, will express the proposition that the experience referred to in e_i is reliable.

It is necessary, for Braithwaite's argument, to combine (2) and (5) into a single proposition. We obtain, from (2) and (5),

$$e_1 e_2 \,.\supset.\,(\sim p \,.\vee.\, \sim r_1)\,(\sim p \,.\vee.\, \sim r_2)$$

i.e. $e_1 e_2 \,.\supset.\, \sim p \vee (\sim p \,.\, \sim r_1) \vee (\sim p \,.\, \sim r_2) \vee (\sim r_1 \,.\, \sim r_2)$

i.e. $e_1 e_2 \,.\supset.\, \sim p \vee (\sim r_1 \,.\, \sim r_2)$ . . . . (8)

In words, the combination of the two experiences strongly verifies that either there is not a clock on the mantelpiece now or both experiences are unreliable. By an extension of the preceding argument, we could consider a larger set of experiential propositions $e_1, e_2, \ldots\ldots, e_i, \ldots\ldots$ relevant to the truth value of p and the corresponding set of material object propositions $r_1, r_2, \ldots, r_i, \ldots$ expressing the reliability of the corresponding experiences and so obtain a generalised version of (8), viz.

$$e_1 e_2 \ldots\ldots e_k \,.\supset.\, \sim p \vee (\sim r_1 \,.\, \sim r_2 \,.\ldots\ldots.\, \sim r_k) \qquad (9)$$

The relations expressed in the propositions (1) to (9) above are used by Braithwaite as a basis for his definition of p. Before explaining how this is done it is necessary to recall that the attempt is being made to *define* p in terms of experiential propositions. Thus (1) to (9) express conditions which the proposed definitions (for p, r, r_1, r_2, etc.) in terms of e's must satisfy identically when substituted, for p, r, r_1, r_2, ... respectively, in each of (1) to (9). Braithwaite's problem of definition then appears in the following light : Suppose we are provided with $e_1, e_2, \ldots, e_i, \ldots$ and know that all the partial products selected from this set satisfy relations of the form shown in (9) : how can we express p explicitly in terms of the e's ? Braithwaite's proposed solution makes use of the different positions of p and each of the r's in the truth-function $\sim p \vee (\sim r_1 \,.\, \sim r_2 \,.\ldots\ldots.\, \sim r_k)$ of (9) above ; whereas each r occurs symmetrically in relation to the other r's, so that the interchange of r_1 and r_2, say, leaves the truth-function unaltered, p, unlike the r's, cannot be interchanged with another constituent without altering the truth-function. Thus p can be distinguished from the r's as the *unsymmetrical* constituent of the truth-function. Braithwaite's final definition is that p is " the unsymmetrical constituent in every proposition which could be strongly verified by 2, 3, 4, ... , n experiences of a certain sort " (PMO, 283). Or, translated into our own terminology, p is the unsymmetrical

constituent of every proposition implied by every partial logical product of propositions selected from the set

$$e_1, e_2, e_3, \ldots, e_i, \ldots$$

It is assumed, as previously stated, that the set $\{e_i\}$ of experiential propositions relevant to the definition of p, can be determined without mentioning p itself; and different material object propositions will be associated with different sets $\{e_i\}$ of experiential propositions.

3. Criticism of the definition of p: (*a*) Does $e_1 \supset (\sim p . \vee . \sim r_1)$?

Braithwaite's proposed definition of p (the proposition *There is a clock on the mantelpiece now*) turns upon the assumption that the experience which would commonly be said to be that of now seeing the mantelpiece without a clock on it strongly verifies the disjunction that either there is no clock on the mantelpiece now or the experience in question is unreliable. In the language of this discussion, on the assumption that $e_1 \supset (\sim p . \vee . \sim r_1)$. Whether this proposition is in fact true will depend upon the meaning to be attached to 'r_1' i.e. to the sentence 'this experience is reliable'. Braithwaite does not define the meaning of this sentence, but contents himself by supplying examples of situations in which $\sim r_1$ would be true. If I am dreaming, or am hypnotised (PMO, 275) or am using my eyes in certain peculiar ways, my experience is unreliable. These examples suggest at first that the phrase 'this experience is reliable' could be translated into some such form as 'this experience is that of a normal observer using his sense organs in the normal way'. Let us call the proposition expressed by this last phrase r_1'. It is easy to see however that r_1' will not do the work required of r_1. For it is false to say that $e_1 \supset (\sim p . \vee . \sim r_1')$. I may be a normal observer, neither dreaming, in a state of hypnosis, nor under the influence of drink, and looking at the mantelpiece in the normal way, and yet fail to see the clock when there really *is* one on the mantelpiece. For I may be the victim of an illusion contrived by a practical joker by means of lenses or a painted cloth. In such a case there may be a clock on the mantelpiece even although I do not see one and my experience is 'reliable' in the sense that it would not normally deceive me. Since r_1' will not play the part assigned to r_1 in Braithwaite's scheme, we must add to our proposed translation

of the phrase ' this experience is reliable ' the words ' who is not suffering from an illusion '. Only if ' this experience is reliable ' implies ' this experience is not illusory ' will the proposition expressed by the former sentence be the one needed in Braithwaite's analysis. But what is the test of an experience not being illusory ? Surely that what it purports to present as being the case is in fact so. On this interpretation, then, r_1 (' this experience is reliable ') is *identical* with $e_1 \supset \sim p$. The truth-function $e_1 \supset (\sim p . \vee . \sim r_1)$ becomes $e_1 \supset (\sim p . \vee . \sim (e_1 \supset \sim p))$ which is easily seen to be a tautology. If this objection is well founded it would prove fatal to the proposed definition of p : for to falsify strongly the conjunction of p and r_1 would then be to establish a tautology, viz. $a \supset (\sim b . \vee . \sim (a \supset \sim b))$ which is known already without reference to experience. (Cf. Braithwaite's reasons for discussing and dismissing the view that r_1 is simply $\sim p$, PMO, 284.)

4. Criticism of the definition of p : (b) It does not distinguish p from $\sim p$.

Reference back to the final form of Braithwaite's definition on p. 4 above will show that it does not define p unambiguously. For $\sim p$ also is an unsymmetrical constituent of every truth-function of form $\sim p \vee (\sim r_1 . \sim r_2 . \ldots . \sim r_k)$. Thus, in its present form the proposed definition of p fails to distinguish between p and $\sim p$. Braithwaite does not seem to regard this as a serious defect. He says it is " purely a matter of convenience as to whether we choose to take the determined proposition as positive or negative, whether we choose to call it 'p' or ' not-p' " (PMO, 281). But if it is p we are undertaking to define, it is not merely inconvenient that we should be provided with a determination which will apply equally to not-p. Braithwaite's proposed definition is in fact a definition not of p alone, but of the *pair* of propositions p and not-p. If it is to determine the first of these exclusively the definition will need to be supplemented. This could be done provided it were permissible to assume that the propositions strongly verified by $e_1, e_2, \ldots$. and their partial products are each of the form $\sim a \vee b$ where a is an unsymmetrical constituent of the whole truth-function, $\sim a \vee b$, and b is a truth-function of symmetrical constituents alone.

The definition would then run as follows :

Each proposition obtained by taking one proposition or the

logical product of any number of propositions from the set

$$e_1, e_2, e_3, \ldots, e_i, \ldots$$

implies a proposition of form

$$\sim a \vee b$$

where a is the same for each of the propositions thus constructed from the set $\{e_i\}$ while b is different in each case. Then p (the proposition to be defined) is that proposition which occurs at the place indicated by 'a' in each of the truth-functions thus implied. (It may then become unnecessary to mention the symmetry or asymmetry of the constituents in the propositions implied by the experiential propositions.)

In this form attention is drawn more explicitly to the fact that Braithwaite's proposed definition involves an existence postulate viz. that there are propositions of form $\sim a \vee b$ implied by certain specified experiential propositions.

5. Criticism of the definition of p : (*c*) The notion of 'constituent' of a proposition is indefinite.

In the definition under consideration, p is defined as the (unsymmetrical) "*constituent*" in "every proposition" which would be strongly verified by experiences of a certain sort. The phrase "constituent of a proposition" is not explicitly defined. What is intended however is that *x is a constituent of y* should be the converse of *y is a truth-function of x*. But it is necessary to exclude cases in which x occurs vacuously in y i.e. cases in which the truth-value of y is independent of the truth-value of x. (This obviously includes cases in which y is a tautology or a contradiction). Suppose we say, then, that x is a constituent of y = Df $(\exists h, j, \ldots, w)$ {(y is a truth-function of $x, h, j \ldots, w$). (y is not a truth-function of any selection from $x, h, \ldots, w$). (y is neither logically necessary nor logically impossible)}. Apart from the fact that the decomposition of a given proposition into its constituents need not be unique (which may not be a very serious difficulty), the awkwardness of this definition arises from the absence of any method of discovering the constituents of a given proposition.

Let us consider first the case where we are *presented* with propositions $x, h, j, \ldots, w$, and with another complex proposition y explicitly synthesised in terms of $x, h, j, \ldots, w$

and the logical connectives, e.g. $y = \sim x \vee (\sim h . \sim j \ldots . \sim w)$. In such a case (which is not that which arises in Braithwaite's procedure) we have a determinate method for deciding whether x is a constituent of y in accordance with our definition. We have only to evaluate the truth values of y for all possible combinations of the truth values of $x, h, j, \ldots, w$. In the example given in the first sentence of this paragraph, such a procedure would show x to be a constituent of y; in the case $y = x . \sim x$, on the other hand, x would not prove to be a constituent. The procedure in such cases is, with slight modification, the procedure for deciding whether a given proposition is a truth-function of the propositions in terms of which it is ostensibly expressed.

Let us now consider the case where we are still presented with $x, h, j, \ldots, w$ but y, while not being ostensibly expressed in terms of them, is connected with them either by internal or by deductive relations. E.g. $x = a\mathrm{R}b$, $h = b\mathrm{S}c$, $y = b\mathrm{R}a . c\mathrm{S}b$. In such a case we *may* be able to verify whether x is a constituent of y, although the information supplied may be insufficient to settle the matter one way or another.

Now there is no general method for reversing the process illustrated in the last two paragraphs in such a way as to be applicable to cases in which we are simply supplied with a proposition y not ostensibly expressed in terms of the proposition which claims to be its constituent. We have in such a case no means of deciding *which* propositions are the constituents of y. Even if, *per impossible*, we could direct our attention in turn towards every group of propositions $x, h, j, \ldots, w$, we should still have no means of deciding, in the absence of further information concerning the relations of y to such groups, whether y was indeed a truth-function of any one of them, for the notion *y is a truth-function of x* is not defined for *all* pairs of propositions x, y.

In the use which Braithwaite wishes to make of the notion of constituent of a proposition he presents us with propositions $e_1, e_2, \ldots, e_1e_2, e_1e_3, \ldots$ and asserts by implication that each of these implies some proposition of which p (the proposition to be defined) is a constituent. Thus neither p, nor the proposition of which it is claimed to be a constituent ($\sim p . \vee . \sim r_1$ for instance), nor the other alleged constituents of the proposition ($r_1, r_2, \ldots$) are presented. There is therefore no guarantee that the proposed definition in fact defines a proposition.

It is a peculiar feature of Braithwaite's proposed 'definition' that instead of defining p explicitly in terms of experiential propositions (or truth-functions of experiential propositions) he tries to locate it as a certain kind of constituent in other propositions which are described but not defined. He is in fact, therefore, *describing* and not defining p. (Cf. say a definition of p as 'the proposition expressed by the first italicised sentence in section 2 paragraph 2 of this discussion'.) Now any description involves existential assertions. To describe p as the proposition expressed by a certain sentence in a certain position on a certain page implies that there *is* such a sentence in that position. Similarly to describe p as an unsymmetrical constituent in certain propositions respectively implied by e_1, e_1e_2, etc. implies that those propositions exist. How is Braithwaite to show, without using the description of p, that there is a proposition, other than e_1, implied by e_1 and having p as a constituent? If he is permitted to show this by quoting the proposition $\sim p . \vee . \sim r_1$, i.e. 'either there is not a clock on the mantelpiece or this experience is unreliable,' the process of describing p could be short-circuited by simply quoting p itself. If we are right in deciding that Braithwaite's 'definition' of p is better regarded as a description we shall see his attempt in another light. His attempt may then be more sympathetically viewed as an attempt to analyse (in accordance with the principles of empiricism) the *relation* of p to experiential propositions. His answer would then be: the relation of p to the experiential propositions is that $\sim p . \vee . \sim r_1$ is strongly verified by e_1, while as for r_1, $\sim r_1 . \vee . \sim r_{11}$ is strongly verified by e_{11}, and so on (with a further array of similar relations). If this were a correct analysis it would have the merit of emphasising the specific and rather complex relation between a material object proposition and certain infinite sets of experiential propositions.

6. Criticism of the definition of p: (d) the proposition p is not uniquely described.

It has already been shown that Braithwaite's definition does not distinguish between p and $\sim p$ and a method has been indicated for correcting this fault. But the definition still requires amendment if it is to refer uniquely to a single proposition.

(1) A true proposition is implied by *every* proposition and is thus verified by every experience. Let x be *any* true proposition,

and y and z any other propositions. Then $x \vee (y \,.\, z)$ is verified by any experience or combination of experiences, and x is an unsymmetrical constituent in $x \vee (y \,.\, z)$. Thus p cannot be an unsymmetrical constituent in *every* proposition verified by the experiences expressed in $\{e_i\}$.

This objection might be met by defining p as the unsymmetrical constituent in propositions which are verified *only* by experiences or combinations of experiences of a certain sort.

(2) Let us consider the general problem of deciding the conditions which can be satisfied by p when we are given

$$e_1 \supset (\sim p \,.\vee.\, \sim r_1) \quad . \quad . \quad . \quad . \quad . \quad (10)$$

and

$$e_2 \supset (\sim p \,.\vee.\, \sim r_2) \quad . \quad . \quad . \quad . \quad . \quad (11)$$

with e_1, e_2, r_1, r_2, known but p unknown. We shall discover that if p_1 is any solution, $p_1 A$ where A is arbitrary is another. First, if e_1 and r_1 are given and we want p to satisfy (10), we need only consider the case where e_1 is true. For if e_1 is false the implication is automatically satisfied irrespective of the truth-value of the implicate. When e_1 is true, then, $\sim p \,.\vee.\, \sim r_1$ must be true. If r_1 is false $\sim p \,.\vee.\, \sim r_1$ is automatically true, irrespective of the truth-value of p. Thus the only case to be considered is that in which r_1 is true ; and then p must be false. Thus in order to satisfy (10) the necessary and sufficient condition which p must satisfy is that it should be false when e_1 is true and r_1 is true. In particular p could be

$$(\sim (e_1 \,.\, r_1)) \,.\, A \quad . \quad . \quad . \quad . \quad . \quad . \quad (12)$$

where A is arbitrary.

This shows that if p_1 is any solution of (10), $p_1 A$, where A is arbitrary, will be another solution.

By similar reasoning we find that

$$(\sim (e_2 \,.\, r_2)) \,.\, B \quad . \quad . \quad . \quad . \quad . \quad (13)$$

would satisfy (11) and hence, by a simple extension

that $\quad (\sim (e_1 \,.\, r_1)) \,.\, (\sim (e_2 \,.\, r_2)) \,.\, C$

would satisfy (10) and (11) simultaneously.

In general, therefore, the relations

$$e_i \supset (\sim p \,.\vee.\, \sim r_i), \text{ with } i = 1, 2, 3, \ldots \quad . \quad (14)$$

would be satisfied by

$$\{\Pi_i[\sim (e_i \,.\, r_i)]\} \,.\, Z \quad . \quad . \quad . \quad (15)$$

where Z is arbitrary.[5]

[5] Πa_i means $a_1 \,.\, a_2 \,.\, a_3 \ldots$ i.e. the logical product of a^i for all values of the suffix i.

In words, one solution to the conditions laid down in Braithwaite's definition would be

$p \equiv$ {(If I see a mantelpiece but not a clock now the experience is unreliable) *and*
(if I feel.....)
and
(.....)
and Z}[6] . . . . . (16)

We might exclude Z from Braithwaite's description by taking p to be the proposition with the poorest content of all those at present defined by his method i.e. as that proposition which (without being a tautology) is implied by *every* proposition which satisfies the conditions as they at present stand.

This would make

$$p \equiv \prod_i \{\sim(e_i \,.\, r_i)\} \quad . \quad . \quad . \quad . \quad . \quad . \quad (17)$$

This formula shows that Braithwaite's definition is open to the objections which led Carnap to renounce a conditional definition of material object propositions viz. that p will be true provided $\sim e_1, \sim e_2, \sim e_3, \ldots, \sim e_i, \ldots$ are all true and in particular if the mantelpiece is never observed. For if I don't look at the mantelpiece I don't see that there is no clock on the mantelpiece. Thus, as with other versions of phenomenalism, Braithwaite's analysis implies that the existence of material objects is sufficiently guaranteed by the absence of all observations of them.

7. Summary of Conclusions.

$p =$ 'There is a clock on the mantelpiece now'

$e_i =$ 'An experience is had purporting to show that there is no clock on the mantelpiece now'

$r_i =$ 'The experience mentioned in e_i is reliable'

1. Either $e_i \supset (\sim p \,.\vee.\, \sim r_i)$ is false, or $r_i \equiv (e_i \supset \sim p)$, and then $e_i \supset (\sim p \,.\vee.\, \sim r_i)$ is tautologously true.

2. The proposed definition of p will apply equally to $\sim p$.

3. The notion of 'constituent of a proposition' used in defining p is not shown to be applicable.

[6] This could be seen more simply by direct inspection of Braithwaite's procedure. If a number of experiences all purport to show that there is no clock on the mantelpiece and are all reliable, they falsify not only the assertion of the existence of the clock on the mantelpiece, (p), but the conjunction of that assertion and any other assertion we care to take (Z).

4. The 'definition' of p is better described as a *description* of p.

5. But it is not a unique description : if p_1 is a proposition which satisfies it, p_1 A, A being arbitrary, will also satisfy it.

6. The definition of p can be replaced by an 'explicit definition' involving an infinite number of infinite logical products of experiential propositions.

7. It is thereby shown that p, as described by the method, is true if no observations are made (a defect common to earlier phenomenalist definitions).

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THE JUSTIFICATION OF INDUCTION

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MR. LEWY'S paper[1] is valuable because it reminds us that inductive arguments need no justification.

Here is an example of an argument which we should naturally use, which is similar in form to Mr. Lewy's example.

(1) Whenever I used damp wood in the past it wouldn't burn.
(2) This wood is damp.
(3) Therefore I have good reason to believe it won't burn.

I can know the proposition " if (1) and (2), then (3) " without inferring it from anything.

It is not the sort of proposition which would be true in all conceivable circumstances, i.e. it is not a priori like a mathematical proposition or a law of deductive logic. But I can know it without resorting to inference.

Also I can know the proposition " if (2), then (3) " without any inference (i.e. " if this wood is damp I have good reason to believe it won't burn ").

Mr. Russell says we cannot know such propositions unless we infer them from what he calls the " inductive principle ". And the " inductive principle ", according to him, could only be known " on the ground of its intrinsic evidence ".[2] This puts the cart before the horse. In fact we do know a proposition like " if (2), then (3) " on the ground of its intrinsic evidence and it wouldn't be right to assert his inductive principle unless we saw it was consistent with the validity of ordinary inductive arguments.

It never satisfies a philosopher to say you know a proposition immediately or because it is self-evident. He will always want to ask " How do you know it ? " or " What sort of knowledge is this ? "

Mr. Lewy would probably answer as follows. My knowledge that if (1) and (2), then (3), does not depend on observing facts not about words. It depends on my knowing how the expression " is a good reason for " is used. I know it in the way I know that all brothers must be male.

This is helpful, but not quite satisfactory. I should say the

[1] *Analysis*, vol. 6, nos. 5 and 6.
[2] See Mr. Lewy's article and *Problems of Philosophy*.

way I know that if (1) and (2), then (3), is more like the way I know that if Smith hurt Jones, he did something wrong. People might disagree as to whether Smith's hurting Jones was wrong, not because they disagreed as to how the word "wrong" was ordinarily used, but because of a difference in their feelings or actions. One of them always avoids hurting other people and tries to prevent others from doing the same or frowns when he sees somebody hurt. The other does not shrink from hurting anybody and seems quite indifferent to the cruelty of others.

Even if people commonly called the action of hurting someone wrong, we should be doubtful whether to say that the latter person misused language in saying that Smith did nothing wrong if he hurt Jones.

Similarly one can imagine people who had the same evidence about damp wood not having burnt in the past, disagreeing as to whether there was good reason to expect a bit of damp wood not to burn. Here their disagreement would be connected with a difference between their behaviour and expectations. The man who said there was good reason to believe the wood wouldn't burn, would not build a fire with it. And he would be surprised if someone did manage to light a fire with it. But the man who said there was no reason to believe it wouldn't burn, might build a fire with it.

In the ethical case I have given there is considerable disagreement as to whether hurting other people is wrong, whereas we should be very surprised if a man, with the evidence described, said he had no reason to believe the bit of damp wood wouldn't burn.

There is much more agreement in calling this sort of evidence *good* evidence. And it is very rarely that we meet a person who, with such evidence, behaves as he does. This is why we are so inclined to say he would be misusing language. But imagine someone who said he had good reason to believe the wood wouldn't burn, but still prepared to light a fire with it and is very surprised when it doesn't burn. Is there not an inclination to say that he also is misusing language?

My knowledge of the proposition we are considering depends on my actions and expectations as much as it does on my knowing the use of language, just as my knowledge of the ethical proposition also depends on my feelings and behaviour.

If a person denied that all brothers are male, we could show

him to be wrong by explaining how the word "brother" is used. But a person who denies that he has good reason for thinking the wood won't burn although it's damp and in his experience damp wood has never burnt, wouldn't be convinced by an explanation of the use of the phrase "good reason" provided he really expected the wood to burn,

i.e. (1) and (2), do not entail (3)

in the same way in which "*x* is a brother" entails "*x* is male."

The inductive and the ethical propositions are similar in another way. Under certain rather abnormal circumstances I should not assert them. E.g. if Jones had acute appendicitis and Smith had no anaesthetic, I should not say it was wrong for Smith to hurt Jones. If I knew that the wood had been soaked in petrol I should not say that my evidence gave me good reason to believe it would not burn. Nothing of this kind can be said of the proposition "All brothers must be male."

The circumstances in which to deny Mr. Lewy's proposition would not clearly be a misuse of language are very abnormal. But there are many ordinary cases of valid inductive reasoning where this is not so.

E.g. "If I hear barking, I have good reason to believe there is a dog near."

"If this satisfies the other tests for mercury, I have good reason to believe it will expand when heated."

"If I use damp wood, I have good reason to believe it won't burn."

We often know these propositions without inference, but in such cases it is clear that the antecedent does not entail the consequent. We can easily imagine circumstances where it would be sensible to deny these propositions.

Would Mr. Lewy say that these simpler inductive arguments are not really valid? That only those are valid which have more complicated premisses, which he claims entail the conclusion? If so, he is unduly affected by their likeness to deductive arguments. One could reply in words which he has often used. Consider how the word "valid" is ordinarily used. Do we not usually call arguments like this valid?

But perhaps Mr. Lewy would say they are valid. In this case he cannot say that they are valid because the premisses entail the conclusion.

Part of our treatment of Induction should be to affirm that we *do* know propositions of the form "*p* is a good inductive reason for *q*" and to show what sort of thing it is we are calling knowledge in this case. We do this by pointing out how it resembles and differs from other sorts of knowledge and showing what the connections are of expressions with facts and behaviour.

The other part is to show what are the features of language which have led people to deny that we know such propositions. This is not to explain why people doubt them; if somebody really doubted them it would be no good talking about the use of languages. He could only be convinced (if at all) by practical experience. We want to explain what makes people *say* that they don't know such propositions or that they aren't justified in asserting them, when they do not in fact doubt them.

One cause is a certain verbal similarity between inductive and deductive arguments. In both cases we may use the word "justify". With both we may talk of "premisses" and "conclusion" and may *set them out*, premisses at the top, conclusion at the bottom. With regard to an alleged deductive argument we can say "It is only justified if it conforms to certain formal rules or if the premisses entail the conclusion", i.e. if it would be contradictory to assert the premisses and to deny the conclusion. Because of verbal similarities we are led to say this also of inductive arguments. But we have shown that to say this is to depart from the ordinary use of language.

Another cause is that we ask a certain question which is appropriate and useful with regard to *some* inductive conclusions in *some* circumstances in cases where it is not useful or appropriate. We ask a question of the form, "Do you know this proposition which is such that if it were not true you would have no reason to believe your conclusion?"

An example of the wrong use of such a question is,

> "You say you know by induction that there will be an eclipse to-morrow. But how do you know the laws of nature won't change?"
>
> "You say you know the mercury will expand. But how do you know that regularities which have occurred in the past will continue in future?"
>
> "You say you know dry wood will burn. But how do you

know that because in the past dry wood has burnt it will continue to do so?"

And an example of a similar question with regard to a proposition not arrived at by induction.

"You say you know you will have tea with Smith. But how do you know you know you won't be run over on the way?"

An example of the *right* use of such a question.

"You say that you will take your tripos in 1940. But do you know that you won't be called up?"

In the circumstances I am considering evidence may be produced which would give at least a faint probability to the proposition that I will be called up. I don't feel certain that I won't be called up.

But in normal circumstances no evidence can be produced which tends to show either that I will or that I won't be run over to-morrow. And I feel pretty certain that I won't.

Similarly no earthly reason can be given for saying either that the laws of nature will change or that they won't change. Nevertheless I feel certain that they won't.

These facts distinguish the contexts in which it's right to argue in the above way, from those in which it is wrong.

I think some people, who insist that we do know inductive conclusions, would reply to this sort of argument by saying, "We do know that the laws of nature won't change" or "I do know that I won't be run over". They would say, "Since I know that there will be an eclipse to-morrow I *must* know that the law of gravitation won't change. Otherwise I would have no reason to believe there would be an eclipse. Since I do know I shall have tea with Smith I must know that I shan't be run over on the way."

There is something wrong with this. I might know there would be an eclipse to-morrow. But I don't think it would ever be right to say I know the law of gravitation won't change.

I have often known that I shall have tea with so and so, but I have never in such a case been in a position where I should have been right in saying "I *know* I shan't be run over on the way".

I think it is neither right to say "I know the Law of Gravitation won't change" or right to say I don't know it.

We can give no reason for saying that it will change or for saying that it won't.

There are some propositions which it is clearly right to say we

know, although we can't always give reasons for them. i.e. A priori propositions and the propositions of sense and memory.

If you ask me why it is right to say we know these propositions and not right to say we know the Law of Gravitation won't change, I can only say " Because of the way the word ' know ' is used ". If I said " I know that the Law of Gravitation won't change " this would be taken to imply that I had some reason for it.

But if I say " I know that I remember seeing Smith " I would never be taken to imply that I could give a *reason* for saying that I remember seeing Smith. The implications of the word " know " depend on the verbal context in which it appears.

For similar reasons I should say it is neither right for me to say " I know I shan't be run over to-day " nor to say " I don't know that I shan't be run over to-day ".

The proper reluctance to say one knows such propositions as " the law of gravitation won't change " accounts for the plausibility of the sceptic's argument. But it makes it plausible only because of a confusion. The confusion between it not being a right use of language to say " I know *p* " and its being a right use of language to say " I don't know *p* ".

The sceptic's argument would only be valid if it was right to say " I don't know that the law of Gravitation won't change. But to say this would be taken to express a doubt, and to say ' it's not a right use of language to say " I know *p* " ' need not express any doubt at all."

With propositions which don't look like sense, memory or a priori propositions, being able to give no reason for them usually goes together with doubting them. And believing them goes together with being able to give some reason for them. The use of " know " depends on these facts.

But in certain fairly uncommon cases we find such a proposition which we don't doubt, although we can give no reason for it.

In such a case it would be misleading to say we do know the proposition and misleading to say we don't. We can't describe such a case by using the word " know ".

If I doubted whether I should get run over, I should not use language correctly if I said " I know I shall be at Smith's to tea ".

If I doubted whether the Law of Gravitation wouldn't change it would be misusing language to say " I know there will be an eclipse to-morrow ".

But I don't doubt these things.

The puzzle can be put in a slightly different form.

Unless the law of gravitation continues to be in force I have no reason to say there will be an eclipse to-morrow.

But I have no reason for asserting that the law of gravitation won't change.

Therefore I have no reason to say there will be an eclipse to-morrow.

This argument is fallacious since it confuses two ways in which we may say " I have no reason for *p* ".

In one use we express a doubt as to whether *p* is true. For instance, when I say " I have no reason to believe that the war will soon end ". This implies that it is at least as likely as not that the war will go on for some time.

But I may use " I have no reason for *p* " in a way which does not express any doubt. I might do this if I were asked whether I could give any reason for a proposition which I had already asserted.

E.g. " I cannot give any reason for saying that I have a tooth-ache ".

" I cannot give any reason for saying that I really remember this ".

" I cannot give any reason for saying it's wrong to kill ".

If in the above argument we are using the sentence " I have no reason for asserting that the law of gravitation won't change" in the first way, which implies a doubt, then the argument is valid. But if this is what we mean it is not right to say we have no reason to believe the law of gravitation won't change, since no one genuinely doubts that it will remain in force.

If on the other hand we mean it in the second sense, in which it's right to assert that we have no reason to believe the Law of Gravitation won't change, then the argument is invalid.

This can be brought out by giving an argument of a similar form which is obviously invalid.

If I did not remember drawing the curtains I should have no reason to believe they are drawn now.

I cannot give any reason for saying I remember drawing the curtains

Therefore there is no reason to believe the curtains are drawn now.

SOME NOTES ON ASSERTION

By CASIMIR LEWY

I DO not propose to consider in this paper the so-called problem of assertion in any detail. All I wish to do is to make some critical remarks on what Mr. Wisdom says on the subject in his recent paper in *Mind*,[1] and to discuss briefly a few related points.

Moore has discussed the whole problem in great detail[2] and many of the things I'm going to say are due to him. On the other hand I should, perhaps, mention that the chief point I'm about to discuss occurred to me before I heard Moore's comments on Wisdom's paper.

Wisdom says (*op. cit.* p. 463) that " statements about propositions and characteristics such as ' He asserted the proposition that Africa is hot ', ' She is chic ', can be turned into statements about words ' He uttered the sentence " Africa is hot " ', ' She is what the French call " chic " ', if, and only if the verbal statements are so used that we say that a man understands them only if he understands not merely the expression ' the sentence " Africa is hot " ' but also understands that sentence and similarly understands the word ' chic ' ".

This statement may in a way be regarded as an attempt to correct a now famous mistake of Carnap, who used to hold that " Babylon was treated of in yesterday's lecture " can be translated into " the word ' Babylon ' occurred in yesterday's lecture " (Cf. Logical *Syntax of Language*, p. 286), and analogously of course that the proposition " *A* asserted that Africa is hot " can be translated into " *A* uttered the sentence ' Africa is hot ' ".

These are examples of the translations from the so-called " material mode of speech " to " the formal mode ".

Now, it has been pointed out by Moore (and probably by others) that this won't do. For a parrot can utter the words " Africa is hot " but no-one (except possibly Carnap) would say that a parrot can *assert* that Africa is hot.

The passage quoted from Wisdom doesn't make it *quite* clear that the same objection wouldn't be relevant to his own view : for it isn't plain whether the words " . . . we say that *a man* understands them only if . . . " refer to the hearer or to the speaker. If they were intended to refer to the hearer then the

[1] ' Metaphysics and Verification ', *Mind*, October 1938. [2] In lectures.

objection would be relevant (and so would a similar one : suppose a German who didn't know any English uttered the words " Africa is hot " ; we should not say that he asserted that Africa is hot). But if, what I think is the case, Wisdom was referring to the speaker himself, these objections are not valid.

But although Wisdom seems to have avoided Carnap's error his own claim that the two expressions are logically equivalent is, I think, unjustified. I shall try to express my criticism by considering first what conditions must be satisfied if *A* is to assert anything.

Following Moore I shall formulate them as follows :

(1) *A* must use some *token* or other,

(2) *A* must use some token with some meaning or other (or *A* must attach some meaning to some token which he uses).

These two conditions are *necessary* but not sufficient.

[*Note :* Moore mentions two other conditions which some philosophers regard as necessary but which, according to him, are not necessary.

The first is that in order to assert *p A* should either believe *p* or know *p*. To state this as a necessary condition is wrong because one can certainly assert *p* and be lying. Furthermore we couldn't lie at all *without* asserting something or other. On the other hand the temptation to state this condition as a necessary one is, I think, excusable. For there is, I think, a tendency to say that *A* didn't really assert *p*, if he was lying. But I have no time to develop this point here.

The second condition which some people *mistakenly*, according to Moore, regard as necessary is that in order to assert *p* one must use a token of *p* or a token of an expression which has the same meaning as *p*. Moore denies this, and the sort of example he gives in support of his view is this.[3] Suppose I make an arrangement with Smith that if I go to the Union I shall leave on my desk a white sheet of paper with a cross in the middle. Suppose I do leave such a sheet of paper on my desk, but instead of going to the Union go to the University Library. Then Smith could rightly accuse me of breaking the arrangement, and say " You *said* that you were going to the Union". I agree with the example but deny that it supports Moore's claim. For in this case I should be introducing a new language (or a new language-

[3] This is not actually his example, though modelled on his.

arrangement) in which leaving a white sheet of paper with a cross in the middle *would* mean the same as the words " I am going to the Union " mean in English. Thus I should be using a token of an expression which has the same meaning as *p*. I may, perhaps, be extending in this case Moore's use of " expression " and of " token " but this seems to be unimportant. All that can rightly be said is, I think, that it is not necessary in order to assert *p* to use a token of *p* or a token of an expression which has the same meaning as *p in any of the existing languages* (like French or German).]

Wisdom's description satisfies the conditions (1) and (2), and it satisfies further another condition (which in itself is neither necessary nor sufficient), namely that *A* attached the *ordinary* meaning to *p*.

But even all this is not enough to justify his claim that " He asserted the proposition that Africa is hot " means the same as " He uttered the sentence ' Africa is hot ' ".

This can be brought out in the following way. I now write down the proposition " The Labour Party will win the next General Election ". I attach to all the words occurring in the sentence expressing this proposition their ordinary meanings etc., but can it be said that I have *asserted* that the Labour Party will win the next General Election ? Obviously not. I may have been merely *considering* this proposition.

Similarly an actor on the stage is not asserting any propositions expressed by the sentences which he utters. The members of the chorus in Auden and Isherwood's " On the Frontier " were not *asserting*

> Perhaps we shall die by a firing squad,
> Perhaps they will kill us, that won't be odd,
> But when we lie down with earth on our face,
> There will be ten men much better to fight in our place !

Nor am I asserting anything, to take yet another example, when I read aloud a poem.

I conclude therefore that " He asserted the proposition that Africa is hot " *cannot* be translated into " He uttered the sentence ' Africa is hot ' " as Carnap has claimed ; nor can this be done on the more complicated lines suggested by Wisdom.

Both for Carnap and Wisdom, however, the alleged possibility

of making this translation is important. The importance of it, in the case of Wisdom, lies in the fact that he wishes to say that for every statement about abstract entities—propositions, characteristics—there is a verbal statement which makes the same factual claims though its meaning is different.

This may suggest to us that what Wisdom meant by saying " ' He asserted *p* ' can be turned into ' He uttered " *p* " ' ", was not that the two statements mean the same but that they make the same factual claims. This however wouldn't do either. For one of the " factual claims " made by the proposition " He asserted that Africa is hot " is that he either knew that Africa is hot, or believed this, or was lying ; whereas " He uttered the sentence ' Africa is hot ' " does not make this claim because he might have been merely considering the proposition.

I have mentioned two conditions necessary for saying that A has asserted *p*, but said that they were not sufficient. Can we find a condition which in conjunction with these two would make a sufficient set ? I think we can. There is a certain way of speaking which may be called " an assertive way ". And what distinguishes asserting a proposition (in speaking) from merely considering it is the assertive way in which it is said.

Thus Wisdom should have said that the proposition " He asserted that Africa is hot " can be turned into " He uttered *assertively* the sentence ' Africa is hot ' ". Whether this would serve his purpose I don't know.

What makes a way " an assertive way " (of saying things in a language) ? There is a tendency to ask this question thinking that it's possible to give one or more characteristics which are essential, i.e. both necessary and sufficient.

I cannot do this. I can however describe this way indirectly by saying that a parrot does *not* utter sentences assertively, nor does an actor on the stage, nor does a person reading aloud a poem or a novel. But if, trying to describe it " more directly ", we ask : Is it a particular tone of voice ? or is it " a feeling of conviction " accompanying the uttering of the sentence ? Or is it perhaps just the uttering of the sentence plus having a certain image before " the mind's eye " ? —we see that neither of these will do in all cases.

For do we always utter a sentence in one particular tone of voice when we assert it ? Does " a feeling of conviction " always

accompany our assertions? (And in any case the fact that we can assert something and be lying shows that this won't do.) Do we always have a certain image when we assert a proposition? And even if this were so, couldn't we have the same (or an exactly similar) image while merely considering it?

We may then try to describe the assertive way of speaking by reference to the effects which it produces. The characteristic one has in mind in this connection is that if I say *p* in the assertive way I tend to make my hearers believe *p* or tend to convince them that I believe *p*. A short reflection will show that this again is neither necessary nor sufficient. I can assert *p* without making my hearers believe it or even without convincing them that I believe it (when I assert *p* but my hearers take me to be making an ironical remark). Conversely, I can by uttering *p* make my hearers think that I believe it and yet not be asserting *p* at all (e.g. when I make a joke which my hearers take seriously).

Thus I cannot give any one characteristic which must be present if a way of speaking is to be assertive, but I think that enough has been said to make the meaning of this expression perfectly clear.

Cambridge, December 1938.

MORAL KNOWLEDGE [1]

By H. B. ACTON

THE sort of moral knowledge to be discussed in this paper is knowledge about conduct, of the kind which we refer to when we speak of the rightness or wrongness of actions, of performing obligations, failing in our duty, and so on. We have to ask what sort of propositions about the rightness or wrongness of actions we know or can know to be true. Some philosophers have thought that there are self-evident moral truths. They have meant to assert that we can know the truth of some universal and a priori propositions about moral conduct. It is also asserted some moral truths are empirical generalisations. Again, it might be claimed that we know the truth of some singular moral propositions, about the rightness or wrongness of particular actions. Finally, it may be held that, quite apart from any knowledge we may have of moral propositions, we can observe that a certain action itself is right or wrong, as we might observe that a certain movement is quick and another slow. Thus there are two sets of questions. First, do we know any moral propositions to be true? Second, do we observe actions to possess moral characteristics? When once we have distinguished those questions, it seems reasonable to expect that any knowledge we might have of universal moral propositions would be preceded by the observing of the moral characteristics of a particular action. The view has been suggested that we first apprehend directly the rightness of particular actions, and then reach general principles by intuitive induction. It is important to ask, therefore, what it can be to apprehend directly the rightness or wrongness of a particular action.

There is a tendency to look for analogies with a non-moral experience. We should not be justified in saying that cabbages are green, unless someone had seen green cabbages. Can we not say, then, that we could only frame universal moral propositions if someone had first noticed that a particular action had a certain moral characteristic? If we are to be allowed to say this, we must be able to observe the action as it occurs and to notice its rightness or wrongness with the completion of the action. In this sense of "a particular right action", the action is some-

[1] An abridged version of a paper read to the Cambridge University Moral Science Club on November 9, 1939.

thing that is observed to occur, and to have a certain characteristic. Again, would it be merely odd to say that an action was observed to be quick and right, or would there be something absurd and misleading in that mode of expression ?

Lack of space forces me to dogmatise in answering these questions. But it seems clear that thinking or reflection is always needed if we are to know whether an action being performed is right or wrong. For we have to know about the motives of the agent, about the circumstances within which the action was performed, and about the moral rule which is applicable, if we are to decide whether the action is right or wrong. Thus we commenced by looking for a particular right action which was to be the basis for moral rules, and we end by maintaining that we need moral rules to decide whether an action is right or not. The moral particular which was to have served as the basis for an intuitive induction cannot be found. It should also be noticed that in reflecting upon the situation within which the action is performed we are also presupposing moral knowledge. Temperature, barometric pressure, distance from the equator are features of the situation which, ordinarily, we do not consider. But we do consider such matters as whether an object was given or lent, whether a promise was made or only a hope expressed, and so on. Even our reference to the motives of the agent also presupposes moral knowledge. It presupposes, I think, that actions resulting from some motives are right and actions resulting from others are wrong. We may conclude from this that when we distinguish actions as right or wrong we are already thinking in terms of *a system of moral ideas*. " Right " and " wrong " derive their meanings from their place within this system, and cannot be understood except in terms of it.

This conclusion cannot be avoided by arguing that actions are independent of motives and are right or wrong irrespective of the states of mind of the agent. Actions are not independent things that could be observed like wildfowl. If we ignore the motives and purposes and memories of the agent, then what is left to observe is the movements of a body, and other movements resulting from them. It is not such entities that are right or wrong. It might be objected, however, that since an action can be rapid, as well as right, an action can be a movement, whatever else it may be also. I do not wish to deny that movements are

involved in actions, but the objection rests upon an instructive fallacy. For when we say that someone acted rapidly, we are using the word " rapidly " in a special sense. In the context in which it would be proper to say that someone acted rightly and rapidly, we ought to mean, by " rapidly ", " promptly ", " without delay ", " in order to achieve the desired result as soon as possible ". " Rapidly " does not mean here, as it might mean in other contexts, " at a speed greater than so many feet per second ".

It is important to notice that if it is argued that moral rules about actions must be based upon the characteristics of particular right or wrong actions, then some actions possessing these characteristics must themselves be observed. The action has to be performed for its moral characteristics to be known. Such an action could be called a " moral particular ", or a " particular right (or wrong) action ". But " a particular right action " might also mean " the action which somebody in these particular circumstances ought to do ". The phrase " a particular obligation " is also used in this way. But in this sense a particular right action or a particular obligation is not something that could be observed. For when I know what I ought to do, I may not yet have done it. To know what I ought to do is to know that if I do so and so, I shall act rightly. If " particular right action " or " particular obligation " had always been understood in this sense, and had never been confused with the sense in which the action is in process of being performed, then there would have been little danger of overlooking the systematic character of our moral knowledge. For there is now no question of observing directly a characteristic of an action in performance. " Knowing what is right in these circumstances " might be compared, rather, with completing some of the details of a prearranged plan of campaign. Only if you have some knowledge of the plan as a whole, and of how its details are intended to fit in with one another, can you act intelligently with reference to it. In knowing what one ought to do, one is similarly seeing how to complete, or at least to continue, a complex social transaction. Part of the function of moral philosophy should be to trace out the nature of these transactions, and how they fit in one with another.

Let us, then, consider what is meant by " right " or " ought "

in such a statement as that I ought to return what I borrow or that it is right for me to do so. It seems absurd to deny this, just as it is absurd to speak about the fourth angle of a triangle. For returning the object borrowed is part of the arrangement in the borrower-lender transaction. On the other hand, it is possible to back out of the borrower-lender arrangement, as it is not possible to draw or to think of the fourth angle of a triangle. To say that the action of returning the object is right is to say that it is a necessary element in the plan. But in saying this we also intend to refer beyond the internal details of the borrower-lender transaction, to the possibility, on the one hand, of keeping to the arrangement, or to the other possibility of starting on the course and refusing to complete it. This second sense of "ought" or "right" might conceivably be not unlike the first. We want to know what is meant by "ought" in the proposition "I ought to complete the transaction that has already commenced by my receiving from someone else an object which he expects to have back again". Perhaps, in this case, the "ought" can be explained in terms of some wider plan, in which the returning of the borrowed article would form an element. It appears conceivable that all our obligations might form parts of an elaborate and far-reaching plan of conduct, involving, perhaps, the whole of mankind. There might be some basic and all-inclusive system of moral conduct in which almost everyone is involved. An individual, of course, might refuse to take part in it. Such refusal would not be formally announced, but would show itself in persistent villainy. The system itself, should there be one, would have to be reconstructed from our various beliefs about right conduct, since no one has a view of it as a whole, and since it has not been consciously and deliberately adopted. It would be the business of moral philosophy to attempt an account of this "moral world".

It is important also that we should attempt to get clear about the presuppositions, or the degree of complication, or the *level*, of moral knowledge. Although there are a priori elements in moral knowledge, it is a mistake to claim demonstrative knowledge in the moral sphere. It is necessary for us also to guard against the opposite view that knowledge of what we ought to do is always hazy, incapable of reasoned defence, or never reached as the result of an argument. From the fact that moral knowledge is quite

different from mathematical knowledge, it does not follow, as some have thought it must, that casuistry is useless or impossible. For our moral knowledge is systematic, and it is therefore possible to explore the nature of the system, and to show how particular actions fit into it.

Perhaps it is worth suggesting that a number of ethical puzzles might be solved by reference to this notion of the level of thought which is proper to ethics. (*a*) It is argued that, since "ought" implies "can", and since all I can do is to aim at something but not secure that my aim has the expected effort upon the natural world, it can only be my duty to aim at producing some effect, but not actually to produce it. (*b*) The view has been put forward that, since minds are unable to act upon matter at all, it can only be our duty to know ourselves, improve ourselves, and resign ourselves. (*c*) Utilitarianism, it is suggested, can be refuted by pointing out that were it true we should never know our duty, for the remote and unknown consequences of an action might weigh heavily in determining its value. With regard to (*a*) and (*b*) it might be suggested that when we say, for example, that it is right to return what is borrowed, we are using the words "return" and "borrow" in senses that are compatible with any tenable theory about the relations of minds to bodies. Again, it is possible that the sense of "consequences" in which it is relevant to ethics is one that excludes reference to these so-called "remote consequences". In general, it might be that when we say that we ought to do this or that, we are speaking about doing things in the way in which we speak about opening doors or assisting friends or overcoming difficulties. We cannot doubt our ability to do this sort of thing. It is with actions of this sort that ethics is concerned, but not with exerting acts of will which occasion physical movements, nor with the putting into motion of series of events the value of which can never possibly be summed.

CONSCIENCE AND MORAL CONVICTIONS

By GILBERT RYLE

IN discussing the conflict between Moral Sense theories of ethical knowledge (or conviction) and intellectual theories like those of Kant and Price, recently, I struck a point which was new to me. I had always vaguely supposed that ' Conscience ' is ordinarily used to signify any sort of knowledge or conviction about what is right and wrong. So that *any* verdict about the rightness or wrongness either of a particular type of conduct or of a particular piece of conduct could be called a verdict of ' Conscience '. I had also supposed that ' conscience ' was too vague and equivocal a word to enjoy any definite syntax.

But then I noticed that ' conscience ' is *not* used in this way. We limit the verdicts of conscience to judgments about the rightness or wrongness of the acts only of the owner of that conscience. It is absurd to say, ' My conscience says that *you* ought to do this or ought not to have done that '. Judgments about the morality of other people's behaviour would not be called verdicts of conscience. If asked to advise someone else on a moral point, I could not without absurdity say that I must consult my conscience. Nor, if someone else misbehaves, can *my* conscience be said to disapprove. Conscience is a *private* monitor.

True, I can set myself to imagine moral problems. I can consider how my conscience would react if I were in your shoes, doing what you have done, or meditate doing. I can say, ' I could not do so and so with a clear conscience, so you ought not to do it '. But I can't say, ' *My* conscience won't be clear if *you* do it '. What, then, is the difference between conscience and moral conviction which makes it absurd to regard the verdicts of my conscience as co-extensive with my moral convictions ? Why can *my* conscience pass judgment only on *my* actions ?

Originally, it appears, ' conscience ' generally connoted ' self-knowledge ' or ' self-consciousness '. Introspection would be an activity of ' conscientia ', whether the objects of the introspection were or were not subjects of moral predicates. With the Reformation, if not earlier, self-inspection was supposed to be the direct discovery of the requirements of God. And ' Conscience ' began to have the narrower meaning of the knowledge by self-

inspection of *my* duties and faults. Butler links conscience very closely to ' reflection ' (in Locke's sense) which is equivalent to introspection. But why should my moral convictions apply differently to me, just because direct inspection by me is restricted to *my* thoughts, motives and resolves ?

Certainly, I can't know directly how you feel or what you think, but I can often know well enough by inference. And in reading a novel I can know all about the motives and desires of the characters, for the novelist tells me them. Yet, though I know all about you, or about the hero of the novel, I can't say that my conscience approves or disapproves either of your conduct or of his. Conversely, introspection or self-inspection are not sources of infallible knowledge. I can misdescribe, to myself, without dishonesty, my own motives. I may, e.g. fail to find ' Schadenfreude ' in my ' serves him right ' attitudes, though it is there.

So the difference cannot derive from that between my having *knowledge* of myself and only *opinions* about other people. If God is omniscient it would still be absurd to say that *his* conscience chided me for my behaviour.

At this point it looks tempting to go back and say (with the Moral Sensationalists) that, after all, my moral verdicts about myself do record special (moral) sense-perceptions, while my moral verdicts about others, involving as they do both generalisations of rules and inferential imputation of motives, dispositions, etc. are intellectual and rational. But this will not do. My particular verdicts of conscience are applications of general rules, imperatives or codes. My conscience says, ' You aren't being *honest* ' and this involves understanding both what being honest is, and that it is a general desideratum. (It is like one's prompt recognition that what one is saying is bad grammar, i.e. is a breach of a general rule. The facts that the recognition is prompt and may be unarticulated do not entail that we have a ' grammatical sense ').

I suggest that the solution of the puzzle, which, I think, is a genuine one about the syntax of ' conscience ' and of ' moral conviction ', is in this direction. What is it to *have* a moral conviction ? Or, what is it to *have* principles ? At first, we begin by saying that it is to know or be convinced that some general proposition is true or that some universal imperative is right, or wise. But what are the public tests of whether a person really

knows or is really convinced of so and so ? They are, I think, the following :

(1) That he *utters* it regularly, relevantly and without hesitation.

(2) That other things which he says regularly, relevantly and unhesitatingly, presuppose it.

(3) That he is ready or eager to try to persuade other people of it and to dissuade them of what is inconsistent with it.

(4) That he regularly and readily behaves in accordance with it, on occasions when it is relevant.

(5) That when he does not behave in accordance with it, he feels guilty, resolves to reform, etc.

We are inclined to say that (1) and (2) show that he intellectually accepts the principle ; he thinks e.g. that honesty is desirable : that (4) and (5) show that he is honest or pretty honest, and that (3) shows something between the two, namely, that he admires or respects honesty. And we should also be inclined to say that (1) and (2) taken *alone* show that he is not *really* convinced ; the principle is a part of his intellectual furniture but not of his real nature. His acceptance of it is academic. It is not operative on his volitions, emotions and behaviour. But this is rather fishy. For it sets up a queer fence between thinking, feeling and willing ; as if being a man of principle (say, being honest) differs from acknowledging honesty by the irruption of some new faculty, called will or feeling, which can accept principles, only not in the way in which thought does so. But thinking, e.g. believing, is an aspect of character or nature. The difference between not feeling qualms of doubt and not hesitating in bodily action is not a hard and fast line. *Saying* readily and *doing* readily seem to be related as species to genus, not as coordinate species of a higher genus. Talking to oneself or aloud is behaving. So there seems to be a sense in which *real* acceptance of a principle (does not lead to, but) *is* being disposed to behave in accordance with it. To ' know ' a rule of conduct *is* to be regulated in one's conduct. To know *properly* the rules of grammar is to be able to talk correctly, to correct mistakes and to wince at those of others. A man's party manners show whether he ' knows ' the rules of etiquette ; his ability to *cite* ' Etiquette for Gentlemen ' does not.

Supposing it conceded that sometimes appropriate behaviour is part of what we *mean* by certitude or acceptance of a proposition, let us label as ' operative ' the knowledge or conviction

which manifests itself in the disposition to behave—in *all* sorts of behaviour, including 'thinking'—in accordance with the principle which is said to be known or accepted. To be disposed to behave in a certain way in certain circumstances is to be prone or inclined to do so. Other things being equal a person with a certain disposition will probably behave in the given way; that is what the word 'disposition' means.

Now if someone has operatively accepted a certain principle, but other things are not equal, i.e. he experiences some contrary impulse, there will not only exist a conflict between the temptation and the abstract principle; there will be actually experienced a conflict between the temptation and the disposition which is the operatively accepted principle. He will feel a tension because he *is* the two tendencies to act which are in conflict. "It goes against the grain". And these two tendencies, with their conflict, are visible on self-inspection or inferrible from what he can introspect. His knowledge or conviction of the principle is not an external censor but an internal competitor. His knowledge how he should behave does not *cause* but *is* a nisus to behaving in that way, but it is a *felt* nisus only when it is impeded.

But in passing verdicts on the conduct of others, our conviction, so to speak, cannot be more than academic. For me to believe that you should do so and so can be only to pronounce and perhaps to try to persuade; in the full sense of 'operative' my conviction about your duty cannot be operative, for it cannot issue in the required behaviour. (The desire to punish, rebuke and reform seems to be a response to the inoperativeness of merely finding fault.)

Or, alternatively, my application of a principle to you can take the form only of a verdict or of advice or exhortation, with perhaps subsequent reproof or punishment. But my application of my principle to me can take the form of doing what I should. In this sense conscience is never a merely verdict-passing faculty, it is a conduct regulating faculty. Its exercise is behaving or trying to behave and not describing or recommending. We credit conscience with *authority* as well as with knowledge. That is, we use the word 'conscience' for those moral convictions which issue not in verdicts but in behaving or trying to behave. So it is a tautology that my conscience cannot direct the behaviour of someone else.

This has analogies elsewhere. In a certain sense, I, having

read the text books and been a spectator, know how to swim ; that is, I know what actions people must take to progress in a desired direction in the water, with the nostrils clear of the water. But no-one would say that I really know how to swim or that I have swimming-skill, unless when I do it myself I usually succeed. And it would be absurd to say that I have skill or expertness in the swimming of others, though in the academic sense of the word ' know ' I may know just what mistakes they are making. The proper manifestations of my skill are my performances and not mere directions to others. And the proper manifestations of my conscience are in my good conduct, or reluctance to behave ill or remorse afterwards and resolutions to reform. Conscience is not something other than, prior to or posterior to moral convictions ; it is having those convictions in an operative degree, i.e. being disposed to behave accordingly. And it is active or calls for attention when this disposition is balked by some contrary inclination. Conscience has nothing to say when the really honest man is asked a question and when he has no temptation to deceive. He then tells the truth as he signs his name, without considering what to do or why he should do it or how to get himself to do it. Conscience is awake only when there is such a conflict. The test for the existence of such a conflict is the occurrence of attention to the problem of what is to be done. Pangs or qualms of conscience can occur only when I am both disposed to act in one way and disposed to act in another and when one of these dispositions is an operative moral principle. (And this ' can . . . only ' is logical and not causal.) Wondering what to do is a manifestation of a balked disposition to act ; if it was not balked I would act as I am disposed to act for that is what ' disposed ' means. Consulting my conscience entails attending introspectively to my conflicting dispositions to act. Hence I cannot (logically) consult my conscience about what you are to do. Having a conscience to ' consult ' is having a (partially) operative moral conviction.

Now there are convictions of rules of conduct other than moral ones. So they should in parallel circumstances engender naggings, commands, etc. parallel to those of conscience. Is this so ?

1. *Rules of Prudence.* I have learned from experience, doctors, hearsay, etc. that it is bad for me not to have a regular allowance of sleep each night. I know that I shall feel ' like death ' tomorrow afternoon if I do not have at least seven hours of sleep.

And I do habitually go to bed at 12, say, to be called at 8, without thinking of the effects of not doing so. 'Midnight is my bedtime' is the only thought that usually occurs to me if any thought occurs to me at all. Now, suppose, I am halfway through an exciting detective story at midnight. So I want to read on, and I am disposed to go to bed at 'my bedtime'. I do not feel guilty, but I find myself making excuses and promises for the future. Or, I tell myself that to-morrow afternoon is disengaged so I can sleep then. So I do attend to factors in the situation similar to those which are considered in questions of conscience. In certain of their uses, words like 'discretion' and 'caution' resemble 'conscience'. In the sense, e.g. in which my discretion guides my actions it cannot guide yours. To be cautious, provident, etc. is not just to acknowledge or enunciate certain propositions which may be true for everyone ; it is to be disposed to live cautiously, providently, etc., which though it includes such acknowledging and enunciating does not reduce to them.

2. *Rules of Etiquette, fashion and social decorum.* "We dress for dinner at Christ Church". When we do this, the 'done' thing, we do not generally consider the utilities or aesthetic amenities of the practice. We just dress—i.e. it is a habit—but one which is actualised not only in dressing, but also in feeling surprised if a colleague dines in day clothes, in stopping teaching some time before dinner, etc. Our acceptance of the convention is manifested primarily by our behaving regularly and unquestioningly in accordance with it. Sometimes I am prevented from dressing. Then, while dining in mufti, I feel uncomfortable (though not guilty or imprudent). My sense of decorum, which is not, of course, a new mode of sense perception, nags gently. And in the sense in which I am punctilious about my own dinner uniform I cannot be punctilious about that of other people, I can be only noticing about them or critical of them.

3. *Rules of arithmetic.* The accurate computer regularly observes the rules of addition, subtraction, multiplication and division. And his observance of them is not manifested in a special momentary act of acknowledging them, declaring them or teaching them, but in all his acts of accurate computation. His grasp of the rules is his ability and skill in working in accordance with them. He does not begin each morning's work by reciting an arithmetical creed. In a certain sense of 'think' he never thinks of the rules. In another sense of the word,

however, he is thinking of the rules all the time ; for he is continually applying them correctly and skilfully. The rules are now *habits* of operating. But his accuracy, flair or scrupulousness governs only his own computations. He cannot have a flair about the calculations of other people, though he knows the rules which they should keep and how these rules apply to their particular problems. But this knowledge is ' academic ' while flair is practical. The former issues at most in behests and criticisms ; the latter in accurate calculations. To know *operatively* the rules is to know how to calculate, i.e. to be able to calculate correctly, swiftly and without fatigue. The fact that many good mathematical teachers are bad mathematicians brings out these two opposed senses of ' knowing mathematics '. Is there anything in this field analogous to either the questions or commands of conscience ? I think there is. If a computer happens to know the answer which he expects to arrive at, e.g. from reading a pass book, he may through laziness or wishful thinking run too hastily through a column of figures and then, even though by accident his answer is correct, he feels a sense of guilt about his steps, and is inclined to go over them again more carefully. This is especially so when he gets to an answer which for some reason *must* be wrong. To locate and correct a mistake requires a special act of attention to what, say, certain figures do and do *not* add up to. His ordinary scrupulousness does not normally require the occurrence of actual scruples. But sometimes he has actually to feel scruples, which he would not feel unless he were dispositionally scrupulous, and on a given occasion has not been scrupulous enough. God would calculate (if at all) with 100% scrupulousness and 0% scruples. Similarly, he would always do the right thing and would never wonder what he ought to do. He would never consult his conscience and would never have pangs of conscience.

It might be said that having scruples, though they will be scruples of different sorts, is common to all cases where *real* acceptance of rules or principles is the being disposed to behave in a certain way, but where this disposition is balked of its normal actualization by some special temptation or interruption. It is like trying to mis-spell one's own signature when writing one's own name has become an automatic habit. One *can* do it, but there is a resistance. One may compare also the practised cyclist trying to control a tricycle. His normal responses, e.g. in turning

or in tilting are balked by the abnormal situation. He knows (academically) what to do, but does not *really*, i.e. operatively know how to do it. But as cycling well does not involve acknowledging or being able to cite laws of dynamics, one can scarcely speak of cycling scrupulously. Roughly, *this* sort of habit is a reflex and not an observance.

Conscience, then, is one species, among others, of scrupulousness ; and scrupulousness is the operative acceptance of a rule or principle which consists in the disposition to behave, in all modes of behaviour, including saying to oneself and others, teaching, chiding, etc., in accordance with the rule. Scruples, whether of conscience or of any other species of scrupulousness, occur only when the normal actualisation of the disposition is impeded or balked. And they, too, are only a special way in which the disposition is actualised, viz. when it cannot be *normally* actualised. The reason why my conscience is not spoken of as either judging or commanding other people is the same as the reason why, in general, a man can be described as scrupulous only about his own acts, namely, that full operative acceptance of the rule can (logically) take the form only of conducting oneself in accordance with the rule. Your actions can't (logically) be exercises of or exhibit *my* skill, readiness, capacity, enthusiasm, etc.

This answer to the original puzzle will, of course, provoke the objection that it denies the hallowed distinctions between cognition, emotion and volition. For I am saying that in one sense, and a very important sense, of the word my being ' convinced ' of something or my ' knowing ' it do not *cause* but *consist* in my tending to feel certain feelings and to enact certain actions. It will be said that a thought may *engender* dispositions to feel and to act, but that these dispositions are not the causes of themselves.

I reply : (1) Then must it also be said that when I think in words, my saying so and so to myself is the *effect* of the thinking and not a constituent of it, that I first think and then tell myself what I have thought ? But then I must think also what to tell myself and how to tell it, and this thinking must also have its own articulation which must in its turn be premeditated and so on. . . . Thinking *is* talking sensibly, but then why should it not equally be *behaving* sensibly ?

(2) The present view, that among the criteria (*not* the symptoms) of belief and knowledge are dispositions to feel certain

emotions and perform certain actions does not entail that 'thinking', 'feeling' and 'doing' are synonymous. It is still necessary to distinguish impulsive, reflex and automatic from intelligent, careful, purposive, deliberate and scrupulous actions; and silly from sensible, careless from careful, deliberate from unpremeditated, behaviour. Similarly, feeling indignant, shocked, awed, amused, thwarted, respectful differ from feeling uneasy, angry, or sleepy. Only rational beings in rational states of mind (i.e. not drunk, in a panic, or infantile) can (logically) feel the former, while animals and infants can feel the latter. Was Kant's obscure doctrine about 'Practical Reason' something like this view, and Aristotle's *φρόνησις* which manifests itself sometimes in *acting* from premisses and which is internally connected with *ἠθικὴ ἀρετή*? What do we *mean* by 'judicious behaviour', 'scrupulous conduct', 'skilful or careful action'? It can't mean 'acting in consequence of certain "sententious thinking"'; for we can also say that the choice and control of the sentences in which we think, when we think 'sententiously' can be judicious and careful. Nor could the alleged causal connections between thinking and doing (or feeling) have been discovered by the people who speak of 'judicious behaviour' as an effect of 'sententious thinking', for whatever trained psychologists may do, the plain man cannot find the pure thinkings which are to be inductively correlated with the supposedly resultant actions or feelings. So his use of phrases like 'judicious behaviour' do not signify instances of such correlations.

I have not tried to show what the differences are between conscience and other sorts of scrupulousness. That is not my present puzzle. Nor have I tried to list all the varieties of conduct which can be described as 'scrupulous'. There are plenty of others besides those mentioned; those, e.g. of good discipline in the Army and Navy, observance of Committee and Parliamentary procedure, keeping to the principles of good chess, bridge, grammar, strategy, style, prosody, and of the Judge adhering to the rules of admissible evidence. None of these adherences is 'mere' acknowledgment of general truths or imperatives. They are fully adopted in habitual observance and in feeling scruples about breaking the habits.

Christ Church, Oxford. June 1940.

THE DESCRIPTION OF LOGICAL PROPERTIES

By KARL BRITTON

THE language in which we describe logical properties is largely if not entirely of metaphorical origin : for those properties are described in terms of physical things and processes. This involves special dangers of misinterpretation, for metaphor seldom fails to introduce extraneous associations, often emotional: the ground or basis of a metaphor is often indeterminate and shifting. We might compare the vocabulary of psychology : thoughts and feelings are described almost entirely in words whose original application was (again) to physical things and processes. And no doubt enquirers have always been liable to think such description implies a greater resemblance between the two " worlds " than observation could warrant, and so have been lured into crude mechanical theories. A second analogy might be found in the language of scientific theory (in the sense of " theory " which is opposed to " law "). Here the nomenclature of the hypothesis is commonly of metaphorical origin, derived from the language of the law which provides the analogy for the theory. Thus the molecular theory of gases invites us to speak of " little masses " which have " velocity ", " position ", etc. And it is always rather difficult to avoid the view that we have *discovered* these little masses—difficult to remember that the theory is *not simply a new application of the laws* governing a system of particles in motion. And no doubt the feeling of many scientists that only a mechanical theory is " anschaulich " arises in part from a too literal interpretation of the metaphors employed in the hypotheses.[1]

A metaphor may itself be described in terms of " vehicle " and " tenor ". A poet writes of the moon as the " pale silver-proud queen-woman of the sky ". Here the moon is the tenor, or subject-matter : but a pale proud woman provides the vehicle of the description. In effect, the poet describes the moon by pointing out certain limited, but not explicitly determined, respects in which the moon is like, or is connected with, a proud woman. These respects form the ground of the metaphor.[2]

[1] The description of a theory is taken from N. R. Campbell's *Physics: the Elements*, Ch. VI.

[2] See Ogden and Richards, *The Meaning of Meaning*, pp. 210 etc., and further developments in Richards' later books. In *Interpretation in Teaching*, pp. 48, 49, the distinction between metaphor and non-metaphorical description is almost completely obscured : this excess of zeal has to be corrected on subsequent pages of the book.

The term metaphor is sometimes reserved for the vehicle-tenor device in which the ground is especially vague and expansible, and in which the main aim of the device is either to produce an important emotional effect, or to exploit its dangers for sophistical ends. Hence the notion that " metaphor " should be avoided in plain informative prose. But if we use the word to cover the device itself, as described in the last paragraph, and without further qualification, it is apparent that the invention of new metaphors is the normal means by which vocabulary is extended ; and that the nomenclature of the various sciences and arts is composed very largely of " dead " metaphors and " living " ones—of metaphor built out of metaphor, the living upon the dead, an interminable labyrinthine coral-reef.

A metaphor that meets a need of language will not long survive as a metaphor. When its ground becomes a commonplace of observation and the device gains continual employment, the vehicle-word acquires an additional designation or sense : it is now used in a strictly limited way, perhaps for the property which the original tenor shared with the vehicle (the *head* of a society, a street, a column) or perhaps as a description for the tenor itself (a *board* of management, etc.). The new sense may be confined to the general field of the tenor, but may be applicable even in the field of the vehicle : thus it makes sense to speak of the head as being at the head of the bodily structure. In the second case especially, it will seem that the metaphor is well and truly dead : that it is impossible to smuggle into the description anything that derives from a too-literal interpretation of the original metaphor. A technical metaphor may even appear to be still-born.

It is sometimes said in books on style that the ground of a metaphor is always some *resemblance* between vehicle and tenor. This, as Mr. Richards shows, is certainly not the case. We speak of a mood as *exalted* : here the ground must be a resemblance between the mood and the feeling that is commonly caused in us by being high up and looking down on the world beneath. This relation is therefore indirect, and might be called " contingent ", in the sense that if this same feeling had happened to arise in most people (as I have no doubt it does in some people) from quite a different cause, the mood would never have been described as *exalted* at all : the description depends upon a more or less remote connection between a feeling and a situation. Of course

a metaphor may have many grounds : it is especially the case in poetry that a metaphor has a fairly obvious ostensible ground, but leads us quickly on to discover many more subtle grounds of connection. We may see a simple case of plurality in the psychological sense of " profound " : a feeling is profound both because it is like the feeling commonly caused in us by looking down into a chasm or a pool, and because it seems to affect us " deeply "—i.e., in many important ways. These two features of metaphor are both found in the description of logical properties : some of these plainly rest upon more than one ground, and in all (as I shall show) the connection of vehicle and tenor is indirect and " contingent ".

Logical properties are described by metaphor. Obvious grounds will be (*a*) a resemblance between a sign-arrangement and some physical situation, e.g., conjunction ; and (*b*) a resemblance between certain operations which we perform with signs and physical operations or changes, e.g., consequence. Thus we may say that the metaphors employed are of two types, static and dynamic. But we shall easily see that some metaphorical descriptions have several grounds, of which some may be static and others dynamic : so that some terms belong to both types, e.g., disjunction. It must be understood, therefore, that the two types or tendencies are not mutually exclusive.

The static metaphors describe logical properties primarily by reference to the written sentence-token. Thus in a *conjunction* we have two sentences side by side, coupled by the word " and ". In *implication* we have the notion that what is implied is folded up inside the implying proposition, as " white " is tucked away inside " all white swans ". Similarly *conversion* rests upon the contrast of the two written signs, " all S is P " and " all P is S " ; *consistency* is a matter of being able to stand side by side in a conjunction ; *correspondence* refers us to diagrams and likens the written sentence to a diagram, picture or map ; the *copula*, *intrinsic* properties, *opposition*, and (most important) *structure*, are also static.

The dynamic metaphors refer primarily to sign-tokens uttered or understood one after another, and to their manipulation in thinking, describing, reasoning, explaining. *Disjunction* is static : two sentences are divided by the word " or ". But we think of " or " as a divider and not (like " and ") as a joiner, because we are thinking also of how it is used in active argument :

it gives us one and not both of the alternatives. (i.e. Disjunction in its commoner, exclusive sense.) Primarily dynamic are *consequence* or *follows from* ; the " leading " words, *induction*, *deduction* ; the " throwing " words, *subject* and *object* ; the " carrying " words, *inference*, *reference*, and *relation* ; and the words of controversy, *contradiction* and *contrary*. A little reflection shows that logical *order* is described by a metaphor based on the temporal, not the spatial, order of words and of sentences in discourse. The order is the order of the signs as you come to them : only thus can we distinguish, e.g., western European scripts from Hebrew and Chinese.

It seems that, in thinking about logical properties, many philosophers have been inclined to take their terminology too literally. Perhaps the dangers of misinterpretation are especially acute in the case of a technical terminology, of foreign origin and *appearing* pre-eminently practical and efficient : for here we dismiss all too readily any reflection upon the context from which the vehicle is selected. We do not stop to think : " It is suggested that such a proposition as *Today is Saturday and it is fine*, is in some way like, or connected with, a joining up of two things—trucks, links, partners : now *in what ways* can the proposition resemble or be connected with such couples ? " If we did, I suppose we should see at once that the connection is indirect, and operates via the signs we happen to use to express such propositions ; hence that the connection includes a highly " contingent " association of certain conventional signs and what they indicate or designate. I think we may ascribe to lack of such observation one or two important confusions in contemporary philosophy of logic.

There is the notion, for one, that any language must be a " picture " of the state of affairs that it presents ; that its order (the order of words) must mirror the logical order of that state of affairs. Plainly the metaphorical description " logical order " rests upon the fact that we happen to make use of the spatio-temporal order of words to represent logical order. And of course this is not the whole story : we also represent logical order with the help of the logical constants, quantifiers, grammatical accidence, and punctuation. And I dare say it could be represented only by such signs, without the help of word-order at all. So that a wrong view of logical order rests upon overlooking the indirect nature of the connection between logical

" order " and spatio-temporal order of signs—perhaps also upon too close a pre-occupation with written signs, for logic is pre-eminently a pen-and-paper affair. We might compare the case of the " peak " of a boom in economic jargon. Here one sees at once that the peak is something that could be represented by quite different methods—by the *trough* of a differently constructed graph, or by some quite other feature of some quite different symbolism. No one is going to argue seriously that there is something essentially peaked about the peak of a boom—unless here, as so often happens even in the case of a technical terminology, the metaphor introduces emotional and poetic forces. Alternative methods of representation are not unfamiliar. But philosophers, even when they admit the existence of alternative ways of representing conjunctions, are often found to argue that the " *p* and *q* " form is the best or clearest expression ; and this, not on the grounds that this happens to be psychologically easier, smoother, but on the grounds that there really is some resemblance between proposition and sentence.

Such a view of logical order issues in the characteristic doctrine that all genuine entailment is analytical. *All white swans are white ;* if you can extract *whiteness* from *white swans*, it is because it is a *part* of the concept, just as the sign-token " white " is a part of the sign-token " white swans ". Of course this must be extended to cover implicit tautologies as well as explicit (*All white swans are also birds*). Hence the doctrine that entailment is valid where the sentence expressing the entailing proposition is, *or can be replaced by*, a sentence which, as actually written, includes the sentence expressing the deduced proposition. This doctrine now seems to me to allow an indefensible primacy to one way in which we happen to express conjunction. We can in fact do so by conjoining sentences, each of which itself expresses one of the conjoined propositions. But it is a capital mistake to suppose that a conjunction is *literally* a conjoining of anything. And in fact we express conjunctions in other ways : " The older universities are not moribund " implies " Oxford is not moribund " and " Cambridge is not moribund ". Of course we can easily express this particular conjunction in the " *p* and *q* " form : but who is to say that syntactical rules provide for such an analysis of all conjunctions ? And might there not be a language in which conjoining of sentences was never used to express conjunctions ? The mere fact that this is a logical

possibility is enough to dispel the notion that a sign *can* only represent a conjunction of propositions if it is, or is replacable by, a sign which conjoins sentences. Hence it is enough to dispel the notion that a language must consist of parts in order, the parts corresponding one for one with the elements of the logical structure, and the order corresponding with the logical order. Some account there must be of semantical correspondence, but this particular account rests upon a too literal interpretation of the word "order" and is misleading and inadequate.

An even more fundamental mistake, from which philosophy is still emerging painfully, is to overlook the distinction between logical and other properties. Thus if *John loves Joan*, not only does loving relate John and Joan, but the three terms, John, Joan, and loving are themselves also united in a relation. And if it is true that John loves Joan, then the proposition corresponds with a fact: and we are led to think of the relational properties, true and false, as if they were like sexual differentiation: judgments and propositions happen all to be of one or the other gender. This mistake, I think, is partly due to the fact that we describe logical properties by metaphors derived from non-logical, or material, properties, such as being joined, or matched, or connected by birth, or being straight or crooked. One of the first steps taken in the development of a better language for discussing logic, is to make a sharp distinction between the signs in which we represent logical properties, and the signs in which we represent other properties. This was well begun by Aristotle in the *Analytics*, where the non-logical terms are indicated by letters.

NECESSARY PROPOSITIONS

By MARGARET MACDONALD

I SHOULD like to make a few comments on a recent article on necessary propositions by Mr. Norman Malcolm.[1] Not so much because of anything specifically said by Mr. Malcolm as because his article expresses a prevalent view.

Mr. Malcolm rejects what may be called the 'metaphysical' view of these propositions, viz. that they describe a special realm

[1] "Are Necessary Propositions really Verbal", *Mind*, N.S. 49, pp. 189–203.

of necessary facts known by a kind of interior 'looking' called intuition or self-evidence. But the main concern of his paper is to reject also the later positivist view that they are 'really' verbal i.e. 'they record our determinations to use words in a certain fashion' (Ayer), that they are rules of grammar or commands to use words in a certain way. For, from Ayer's view, it appears as if necessary propositions are a special kind of empirical proposition either about the verbal resolutions of human beings or about their actual usage of words and from the second that they are not propositions at all. Both are paradoxical. The first seems obviously absurd for 'Necessary propositions are really contingent' is self-contradictory. The second is queer because no-one would agree that he was giving a command when he said '3 is the cube root of 27' or 'No two objects can occupy the same place' nor would a grammarian if asked to state as many varieties of grammatical rule as he knew in all languages include the law of contradiction, and if he did he would be wrong. So the verbal analogy as well as the fact analogy fails to give a satisfactory account of logical necessity. But Mr. Malcolm thinks so long as you do not think anything has been said, or that a sort of scientific discovery has been made about necessary propositions, it is very *illuminating* to say they are really verbal propositions or that they are not really propositions at all and that these remarks have great *merit*. The opposite remark that they describe necessary facts although some excuse can also be found for it is, on the other hand, 'dreadfully misguided' and misleading. For it misleads about the way in which one comes to learn necessary propositions (i.e. it suggests that one does so by fixing the eye of reason upon them) and about their nature and function. It not only suggests that they are descriptive statements when their function is not to describe but to be used for making calculations and drawing inferences, but it suggests also that they describe a different kind of fact from the empirical. But since there is no independent evidence of such facts but only the existence of necessary propositions this conclusion is absurd. The 'facts' are not known only by the assertion of propositions about them. The fact that there is a bomber overhead is not evidenced merely by correctly asserting 'There is a bomber' but also by sense perception. I 'see' a bomber and say 'There is a bomber'. I don't 'see' a combination of numbers and say '2 + 5 = 7'. To suppose that necessary and contingent facts

are co-ordinate species of Fact is a delusion due to confusing the grammatical form of necessary propositions with the way in which they are used.

The verbal mistake, however, is said to be illuminating in both its forms. (1) To say the necessary propositions are empirical statements about the uses of words is illuminating because it shows how necessary statements are learned from, based on and justified by the uses of words and that they are not descriptive, therefore, of a special realm of facts. (2) To say that necessary propositions are rules of grammar, commands, not really propositions is illuminating because it helps one to see that necessary propositions do not function as descriptive statements at all whether of necessary or of empirical verbal facts, though it does not, any more than its metaphysical opponent, tell us how they do function. It seems to me doubtful whether these remarks are more illuminating than those they oppose.

(1) Necessary propositions are learned from observing how words are used, from empirical facts about the uses of words and from nothing else. Mr. Malcolm gives imaginary examples. I am not sure how much can be deduced from such appeals to the processes of learning. Children learn in all sorts of ways. They learn the multiplication tables by rote. They learn to count by manipulating beads or counters and they learn geometry by drawing diagrams, and playing with mathematical models. From such activities they might very well be led to suppose that mathematics is a science not unlike chemistry. Would the learning process then entitle us to say that mathematics is 'really' an empirical and not a necessary science? At least, one needs a careful examination of what 'learning the uses of words and nothing else' consists. But whatever else it is, learning arithmetic is certainly learning to count, add, subtract, divide and multiply correctly. And learning logic is learning how to argue correctly. You would not do arithmetic without knowing the symbols—the numerals and other signs—and you could not argue without knowing some language but is doing either identical with knowing how to use certain words and symbols? Is a fallacious reasoner one who does not know the use of his own language? If I go to France to 'learn the language' I go to learn the uses of French words. I don't go to learn how to argue, though I might do so if I thought that the French logicians were better than their English colleagues. If then I am asked,

Ah, but what more is involved in knowing arithmetic and logic than knowing how to use words and symbols, I shall say that is a silly question. Knowing the the rules of arithmetic is not knowing the use of symbols + something else nor is understanding logical principles knowing the use, say, of 'not', 'implies', 'all', 'some', etc. + something else. It just *is* knowing arithmetic and logic. It is knowing how to count and argue correctly. One can give examples of such activities and describe their principles but one cannot 'explain' them in other terms than their own.

The same sort of considerations apply to the point that necessary propositions are 'based on' and 'justified by' verbal habits. Mr. Malcolm says (p. 198 *loc. cit.*) that what makes the principle of double negation equivalent to affirmation a *logical* law, what makes the logician *right* in saying that it is a logical law is the fact that nearly all educated people use double negative expressions as they use affirmative ones. And this is true of all logical principles. Now if p is based upon or justified by q then the assertion of q is a good reason for the assertion of p i.e. p can be deduced from q. But does it make sense to say that any empirical proposition about the linguistic habits of the 'best people' is a good reason for the assertion of a necessary logical principle? Or that such a necessary principle can be deduced from propositions about such habits? To say that q is the justification of p is to say that q gives a logically satisfactory answer to the question 'Why should p be accepted as true'. Suppose I am asked, 'Why do you believe that this man is incompetent?', I might reply 'Because he is a Russian and all Russians are incompetent'. I believe it because it is a valid syllogistic conclusion from true premisses. But suppose I am further asked, 'Why should this be a good reason for accepting it, why is it a valid argument?', I might reply by giving the Principle of the Syllogism. I could say 'Because it is of the form If p implies q and q implies r then p implies r. This would be considered adequate by most people. But suppose my enquirer is a philosopher and goes on 'And why do you accept the Principle of the Syllogism as necessarily true?'. I might try to deduce this principle from more primitive logical principles and perhaps 'ultimately' from the Principle of Contradiction. I should certainly not attempt to derive it from any other proposition than one belonging to logic. And suppose then it were asked, 'And

why do you accept the Principle of Contradiction ? '. Why is it logically necessary ? I should say there is no answer to this question. There is no *reason* for the necessity of the ultimate principles of deduction as they are the reason for the necessity of conclusions drawn in accordance with them. Nor does it follow that their necessity is *irrational*. What is irrational is to ask for a reason and give an inappropriate one where none is required. And that is what philosophers from Plato to the Positivists have done. Surely, it is clear, that no educated person if asked 'Why is *p* and not-*p*' necessarily false ? ' would reply 'Because of the way the best people use ' not ' or ' false ' and that if he did say this he would be wrong? 'For it is impossible to derive a necessary proposition from a contingent one. The principles of logic, one might say, are their own justification, which is to say that they need none. Certainly, their necessity can neither *be* nor be based upon propositions about verbal usage.

(2) Finally, it is said that to say that necessary propositions are rules of grammar or commands to use words in certain ways is meritorious because it emphasises their difference from descriptive statements and illustrates one of their characteristics. For one uses the rules of chess in playing chess very much as one uses the principles of logic in making deductions. But one also uses them very differently. For this analogy leads to the false statement that every necessary proposition might have a significant contradictory just as the rules of chess might have been different. This remark is alleged to remove a great deal of mental cramp. It may do so, but at the expense of causing mental rickets. Why, it is asked, should there not be ' alternative ' logics which do not depend on the law of contradiction as there are ' alternative ' geometries which are developed from the contradiction of Euclid's Axiom of Parallels ? (In what sense these geometrical systems are really ' alternatives ' or what is meant by saying that they are alternative, is never adequately discussed, I think. But I have not space to develop this point here even if I were mathematically competent to do so). Again, it is said, the rules of chess, or of any game, obviously depend on a convention founded on free choice and might have been other than they are and similarly there *might* be situations in which we should be inclined to say that Orange is darker than crimson and lighter than lemon or that *p* and not-*p* are both true in the same context. So the laws of logic and the necessary proposition ' Orange is

between lemon and crimson' are capable of alternatives and their necessity also derives from a convention, a convention about the uses of the words involved. But everyone knows what is meant by inventing a game and determining its rules and that they might have been otherwise if the choice had been different. If we are ingenious enough to invent games we can all make such choices and be aware of making them. But no-one I think has succeeded in giving a convincing account of a situation in which orange might be called lighter than lemon and darker than crimson or in which something might be both red and green all over at the same time. Any attempt that I have ever seen or heard always depends on some totally unconvincing trick or fairy tale about mythical savage tribes who *might* have curious rites connected with their red and green sense perceptions which led them to say that something which was partly red and partly green was of one colour all over, etc. which, of course, proves nothing to the point. Nor has anyone, I think, even remotely been able to show that any language in which argument was possible, i.e. which could be used as we do use language, could contain propositions which were both true and false in the same context. A language, that is, in which the law of contradiction was not necessary. Nor is anyone ever aware of making a choice between possible alternatives in asserting such propositions. Moreover, although deductive processes enter into any intelligent playing of a game, the rules of no such game enter into the processes of deduction. Without processes of reasoning based on logical principles there could be no conclusions drawn even from conventions. Necessary propositions and rules of games, therefore, seem on such a very different level that comparison between them is almost unprofitable. So that although calling necessary propositions 'rules' or 'commands' may help us to see that they are different from descriptive statements of fact, it does not help very much since it does not give a correct account of what the difference is.

But it does not follow that because one rejects this comparison one must be convicted of mysticism about necessary facts. Necessary propositions are not necessary *because* they correspond to necessary facts or *because* they are those we choose to call necessary. They just are necessary. And logical necessity needs no explanation. To describe the nature of necessary propositions is to describe how they function in the different processes of

reasoning. And to do that one must know how to reason. To know mathematics, e.g. is to know the necessary character of mathematical propositions. And to know how to argue correctly is to know the nature of logical necessity in deduction. And similarly, for other necessary propositions, their necessary character is revealed in their use. But they are not necessary *because* they are used in this way. For to ask *why* they are necessary is senseless.

OXFORD. JUNE 1940.

MORE NOTES ON ASSERTION

By AUSTIN E. DUNCAN-JONES

WHEN an idea first starts to be considered philosophically, it often happens that they begin by treating it as much more rigid and simple than it actually is. I think Lewy has perhaps done this in his interesting discussion of assertion in *Analysis* vol. 7, no. 1. I'll give a single illustration. Lewy wants to refute the suggestion that " ' *A* asserted that Africa is hot ' can be translated into ' *A* uttered the sentence " Africa is hot " ' ". He goes on " a parrot can utter the words ' Africa is hot ' but no one . . . would say that a parrot can *assert* that Africa is hot." This is evidently offered as proving that ' *A* uttered the expression " *p* " ' may be true when ' *A* asserted *p* ' is false, and that the one can't therefore be substitutable for the other. But it's very easy to imagine circumstances in which one would say that a parrot made an assertion—and would succeed in conveying what one wanted to convey. It all depends on the situation. For one thing, one might talk playfully about a parrot's assertions. But apart from that, suppose a parrot were trained to say ' fire ' whenever it saw a fire being lit, one might quite well describe the parrot as ' asserting ' that a fire was being lit—particularly if it occasionally made mistakes, for instance saying ' fire ' when I threw a cigarette end into the unlit grate.[1]

I feel tempted to say that Lewy's contention (about ' Africa is hot ') is sound, but that his argument doesn't prove it. This shows that I am subject to the same simplifying itch as I have diagnosed in Lewy. For in agreeing with Lewy I should be

[1] Since this article went to press I have become dissatisfied with the parrot illustration. But it contains the germ of an idea which unfortunately can't be amplified here.

assuming that there is just one simple and stable way of using the word 'assert,' according to which '*A* asserted *p*' can't (or can) be replaced by '*A* uttered "*p*".' Lewy says it can't, but would seem to suggest that it *can* be replaced by '*A* uttered "*p*" (or some equivalent) in an assertive way.'

I propose in this paper to defend three statements: (1) that the word 'assert' (like many other verbs governing propositional objects—'know', 'believe', 'see', 'feel', 'think', 'hope', 'expect', 'say', and so on) has an unstable, protean character, which Lewy overlooks (one can't give satisfactory substitutes for a word like this unless one either depicts the situation in which it is used very carefully, or has the luck to find some other word with parallel instability); (2) that Lewy's account of saying a thing in "an assertive way" is confused; (3) that there is no "problem of assertion."

(1) The method of explaining a word like 'assert' which seems to me most promising is, not to try to give a single ('equipollent') substitute for it, but to describe some typical situations in which one would be inclined to use it, and others in which one would be inclined to use some other subtly different word. (I suspect that in the main Lewy might agree with what I am saying here.) When philosophers offer a substitute for a word they are often really drawing attention to a nucleus, or focus or what not (which may be one of several), round which the uses of the word tend to group themselves. Space won't allow me to review the circumstances in which we should use 'assert' in detail, but I shall notice some of the relevant factors under my second and third headings.

(2) Lewy sets out to say "what conditions must be satisfied if *A* is to assert anything." He also raises the question whether *p* (a sentence containing 'assert') can be "translated into" *q* (a sentence containing 'utter'). He seems to treat these questions as equivalent to one another, and as equivalent to 'does *p* mean the same as *q*?'; but as distinct from the question 'does *p* make the same "factual claims" as *q*?' (Two questions are equivalent for S if any answer to Q_1 which satisfies S will also satisfy him as an answer to Q_2, and vice versa; otherwise they are distinct.) I don't pretend to understand why Lewy distinguishes "making the same factual claims" from having the same meaning: but I don't think this point need be gone into.

Roughly, Lewy appears to suggest that '*A* uttered "*p*" and

either knew or believed *p* or was lying' makes the same factual claims as '*A* asserted *p*'; and that the condition which "must be satisfied if *A* is to assert anything" (vocally) is that *A* shall utter '*p*' in "an assertive way." And this latter statement seems to be equivalent to saying that '*A* uttered "*p*" in an assertive way' means the same as '*A* asserted *p*.' ('Utter "*p*"' here is short for 'utter "*p*" or some equivalent.')

Lewy says (end) he can't give "any one characteristic which must be present if a way of speaking is to be assertive." In order to make the meaning of "assertive way" clear he lists a number of characteristics of an utterance, of *none* of which is it true that it must be present; and other characteristics whose presence entails that the utterance is *not* made in an assertive way. It's very difficult to make head or tail of all this. One's first impression might be that the definition of "assertive" would be an indefinite disjunction of observable circumstances; so that '*A* uttered "*p*" assertively' would be equivalent (say) to '. . . either in a confident tone or with a certain facial expression or with certain gestures or in a certain verbal context or . . .' and so on. But Lewy rules this out by such remarks as that an actor on the stage doesn't utter sentences assertively. (How mysterious and elusive an assertive way must be if it can't be simulated, even by the best actors.) Again, the sort of observable circumstances to which I referred just now might be described as those features of *A*'s utterance of '*p*' which tend to make hearers believe that *A* believes *p*. Lewy expressly rules this out, for what strikes me as a very bad reason. He says "I can assert *p* without convincing [my hearers] that I believe it . . . conversely, I can by uttering *p* make my hearers think that I believe it and yet not be asserting *p* at all." But of course the fact that *A*'s uttering '*p*' in way W tends to make people believe that *A* believes *p* is perfectly consistent with W *not* having this effect on a particular occasion: again, it's perfectly possible that *A*'s utterance of '*p*' on a particular occasion should make people believe that *A* believes *p*, although *A* doesn't utter '*p*' in a way which *tends* to have this result.

I can't help thinking that, when Lewy skirts round the definition of "assertive way," what he is really trying to convey by this roundabout procedure is the rule that it will be appropriate to say '*A* uttered "*p*" in an assertive way' when and only when it would also be appropriate to say '*A* (vocally) asserted *p*.' But

then " assertive way " is no good as an explanation of ' assert.'

(3) Confining our attention to spoken assertions, let us consider what sort of circumstances lead us to say, or deny, that somebody asserted something. The first thing one thinks of is outward criteria, such as tone of voice. Suppose I go into Smith's room, hear him say in convincing tones 'I'm dying, fetch a doctor,' and rush to find one. The situation can be filled in in several ways. Perhaps he really thought he was dying ; but perhaps he was rehearsing a part in a play ; or perhaps he was playing a practical joke. My immediate behaviour, of course, is the same in each case. When I get to the doctor I say ' he said he was dying,' or words to that effect. But did he actually ' say ' it ? Of course he uttered certain words : but was he making an assertion? (The puzzles about the word ' say ' seem to contain those about ' assert ' as a subclass). Did he assert that he was dying? When the doctor arrives he will find out : if Smith was really ill, or if he was joking, he asserted he was dying ; but if he was acting he didn't. (This is on the assumption that the joke consists of my believing he is serious ; and, by the way, he would have to act well, in another sense of ' act,' to bring it off.)

This illustration shows, I think, that one tends to use ' assert ' in such a way that ' *A* asserted *p* ' could be replaced by ' *A* uttered " *p* " with the intention of inducing his hearers to believe that he believed *p* ' (Lewy might write ' knew or believed ' but I think the know-believe distinction may be neglected). But this standard can be deviated from indefinitely, in various directions : for instance, how vague may the intention be ? (How queer was Johnson's phrase " assertion as conscious belief " ? Queer enough to matter ? It was a little time before philosophers woke up to the fact that it was queer at all.)

One might ask ' was I justified in saying " Smith asserted he was dying " ? ' One would be inclined to answer ' yes ' : and the fact that one would answer ' yes ' in such circumstances may, I think, have produced some confusions. I was justified, because I had good grounds for saying *A* had asserted *p* (although perhaps on further investigation I should find good grounds for saying he hadn't, for instance because Smith was merely rehearsing for a play—so after all I wasn't justified). One may distinguish ' linguistic ' justification and ' factual ' justification, or ' linguistically ' and ' factually ' sufficient conditions. *A*'s uttering ' *p* ' in a certain tone of voice is a factual

justification, a sufficient factual condition, for saying that he has asserted *p*. But it isn't a sufficient linguistic condition. It's a sufficient factual condition because it's a good reason for believing in the existence of a sufficient linguistic condition (the intention etc.). Or, to put it in another way, there is an inclination to define 'assert' in terms of outward criteria (tone of voice, 'assertive manner,' situation, context, and so on), because the outward criteria are the only available evidence of *A*'s intention. But, as Lewy recognises, all the outward criteria could be simulated by a good actor, yet we shouldn't usually be inclined to say an actor asserted the things he said on the stage (though, by the way, we should be much more inclined to speak of a *character* in a play making assertions).

Lewy seems to have assembled all the principal considerations which lead us to use, or refrain from using, 'assert,' except the kind of intention to which I have referred. But it seems to me that the intention is the most indispensable consideration—the centre of the nucleus. (I don't think the question need be raised whether one should define intention behaviouristically. I feel little inclination to do so myself.) But it won't do to say merely that my 'intention' formula is a sufficient definition of 'assert.' I want finally to show that this formula doesn't dispose of philosophical problems about assertion, but that all the same the problems can be disposed of.

Here is a good sample problem.[2] Does the speaking clock ('Tim' on the dial telephone) make assertions? On the one hand, it makes intelligible sounds in a convincing tone, which do in fact convey information to the hearer. On the other hand, it certainly hasn't any intentions. Then again, it's a mechanism devised by people who had a slightly different kind of intention from that described above. The inventors intended, not that Tim's hearers should believe at all hours of the day and night that they, the inventors, had certain beliefs about the time at all hours of the day and night; but, roughly speaking, that Tim should utter sentences which at any given time they would have uttered if they had been asked the time, consulted their chronometers, and so on. So does Tim make assertions?

There is no right answer to this question. But we are in

[2] Compare Wisdom's discussion of 'what is a bridle?' in 'Metaphysics and verification I,' *Mind* Oct. 1938, p. 492. Compare also the prototype of all such arguments in James' *Pragmatism*, ch. 2 par. 1. I need hardly say that I am greatly indebted to Wisdom's paper.

possession of all the relevant facts about Tim. If anyone persisted in saying 'but does it make assertions?' one would reply 'do you want more facts? If so we could look them up in a manual of telephone engineering. But if you don't, I suppose you want to know whether the facts authorise you to use the word "assert." The only answer is that this isn't the kind of case in which we use "assert" without hesitation, nor the kind in which we unhesitatingly avoid using it.' As usual, one could arrange suggested uses of 'assert' on a sort of map, according to their nearness to or distance from a nucleus. (Of any two 'assert' sentences, it will not necessarily be the case that one is nearer the nucleus than the other.) Thus: do people make assertions when they answer the question 'what's the time?' do people who shout 'help!' make assertions? do characters in fiction make assertions? does the speaking clock make assertions? do parrots make assertions? when dogs bark, are they ever asserting that they're angry? and so on. To certain questions of this class most of us would answer decidedly 'yes,' to certain questions decidedly 'no,' and about some we should be doubtful. Or again, we might answer 'sometimes, it depends on the circumstances.' The passage from certainty to hesitation would occur at different points for different people and no certainties or hesitations are authoritative.

University of Birmingham, December 1939.

THE JUSTIFICATION OF INDUCTION

By Louis D. Sass

I WISH to comment on the paper "On the 'Justification' of Induction" (*Analysis*, Sept. 1939) by Mr. Casimir Lewy in which he discusses some passages from Mr. Russell's *Problems of Philosophy*.

Both Mr. Russell and Mr. Lewy are interested in the phrase: the problem of the justification of induction. Mr. Lewy states what he takes to be the problem by asking, "What *justifies* us in passing from a premiss of the form 'A and B have always so far as we know been associated' to the conclusion of the form 'A and B will *probably* be associated in the next instance'?" He assumes that "at least *some* inductive conclusions are stated in terms of probability (i.e., are of the form 'It is more likely

than not that . .,' 'It is probable that . . .')" and says the purpose of his paper is "to consider the question of the justification of such conclusions."

We are asked to consider this example :

"(1) Whenever I have heard barking in the past there was always a dog somewhere near : and

(2) I am hearing barking now ; " therefore

"(3) I have good reason to believe that there is a dog somewhere near now."

According to Mr. Russell, no inductive argument is justified, *unless* we assume the principle of induction. This means, says Mr. Lewy, that concerning the example Mr. Russell would claim "(1) and (2) do not entail (3) ; i.e., that (3) does not follow from the conjunction of (1) and (2), *unless* we assume a further premiss to the effect that (2) and (2) do entail (3)."

Mr. Lewy rejects this view because he believes "inductive premisses *logically entail* inductive conclusions" from which it follows that (1) and (2) "do by themselves entail" (3). Mr. Lewy invites us to examine the way in which such expressions as 'I have good reason to believe,' 'It is probable,' etc. are used. He believes we will then agree that the argument "Whenever I have heard barking in the past there was always a dog somewhere near, I'm hearing barking now, but I have no reason whatever to believe there is a dog in the neighbourhood" is self-contradictory just as the argument "All men are mortal, Smith is a man but Smith is not mortal" is self-contradictory.

Mr. Lewy concludes that we do not need to assume the principle of induction in order to justify our passing from (1) and (2) to (3).

Let us analyze Mr. Lewy's remarks. Consider the sentence : "Inductive premisses *logically entail* inductive conclusions." This principle is thought, by Mr. Lewy, to be illustrated by the example cited above and he asserts, therefore, that (1) and (2) *logically entail* (3). Mr. Lewy believes that the words *logically entail* are used in the preceding sentence in the same way in which they are used when we say that the premisses of a syllogism *logically entail* its conclusion. This is supported by his statement that "inductive conclusions follow from inductive premisses in the same way in which syllogistic conclusions follow from syllogistic premisses."

When we say that such an argument as "All men are mortal,

Smith is a man, therefore Smith is a mortal " is a syllogism (i.e., a necessary argument) or that its premisses strictly imply or *logically entail* its conclusion, what do we mean ? I suggest we mean that the conclusion and the premisses are related in a certain way (if the premisses are true the conclusion cannot be false) and that we can discover whether or not they are related in this way only by understanding them. If this is what we mean by saying that the premisses of a syllogism *logically entail* its conclusion and if the phrase *logically entail* is used in this way in the sentence " Inductive premisses *logically entail* inductive conclusions " then what we have said about a syllogism should also apply to the example of an inductive argument which Mr. Lewy presents.

I maintain, however, that merely from an examination of the meaning of the premisses of Mr. Lewy's example we cannot discover whether the conclusion should be " I have good reason to believe that there is a dog somewhere near now " or " I have no reason whatever to believe there is a dog in the neighbourhood." This is so because the conclusion we assert here is chosen in part on the basis of considerations which are not stated in the premisses. Whether I assert " I have good reason etc." or " I have no reason etc." depends not merely on my understanding of the premisses but also on my knowledge of the circumstances under which I assert the premisses. If I pass through a game preserve where I know seals are raised and dogs are kept out I should be quite willing, on occasion, to assert (1) and (2) and then conclude that " I have no reason etc." Mr. Lewy may, of course, insist that as he uses the word *bark* only dogs bark. In that case he would not know whether the noise he hears (which sounds like barking) is to be called barking until after he has discovered whether it comes from a dog or a seal. I need only refer to the way in which we ordinarily use this word to show that no such limitation of its use is made.

It follows, therefore, that when Mr. Lewy says (1) and (2) *logically entail* (3) and " inductive premisses *logically entail* inductive conclusions " he is not using the phrase *logically entail* in the same way as it is used in the expression : the premisses of a syllogism *logically entail* its conclusion. If Lewy's use of the phrase has meaning at all it is in some undefined sense.

Mr. Lewy believes his general principle implies also that " Whenever I have heard barking in the past there was always a

dog somewhere near, I'm hearing barking now, but I have no reason whatever to believe there is a dog in the neighbourhood" is self-contradictory. From an example offered by Mr. Lewy (viz. "All men are mortal, Smith is a man but Smith is not mortal") it follows that a set of three sentences may be said to be *self*-contradictory whenever the use of words which is established in two of them is violated or contradicted in the third. According to this definition of self-contradictory Mr. Lewy's inductive argument is not *self*-contradictory because his conclusion "I have no reason whatever to believe etc." contains no violation of the use of words established in the premisses. It may, indeed, be contradictory to assert "I have no reason etc." when consideration of circumstances not stated in the premisses would lead one to assert "I have reason to believe etc." In that case, however, it is clearly not the inductive argument, as stated by Mr. Lewy, that is *self*-contradictory. This is no more than we might have expected since it follows from the fact that (1) and (2) do not *logically entail* (3) in any ordinary sense.

If I have demonstrated that (1) and (2) do not logically entail (3) in the way in which the premisses logically entail the conclusion of a syllogism and that Mr. Lewy's example is not self-contradictory, then it follows that the expression "inductive premisses logically entail inductive conclusions" is either false or the statement of some undefined relation which Mr. Lewy had no intention of recognizing.

Mr. Lewy asserts that we are justified in passing from the premisses to the conclusion of an argument whenever the premisses logically entail the conclusion. To *justify* means to show that the conclusion to which we pass, from certain premisses, is logically entailed by those premisses.

From the fact that the premisses of an inductive argument do not logically entail the conclusion I conclude that the problem of the justification of induction, which interests Mr. Lewy, must be stated as the problem of showing how a conclusion that *is not* logically entailed by certain premisses *is* logically entailed by those premisses. That, of course, is a pseudo-problem, that is to say, it is no problem at all.

The University of Nebraska,
March, 1940.

METAPHOR

By A. M. MacIver

AT the beginning of his article " The Description of Logical Properties "[1] it seems to me that Mr. Britton is on the verge of making a very important point and then just fails to make it. He observes that " the invention of new metaphors is the normal means by which vocabulary is extended ",[2] yet cannot shake himself free of the notion that the distinction between metaphorical and non-metaphorical expression is absolute. But, in the sense in which Mr. Britton is using the term " metaphor ", this is not the case ; in that sense either every expression is metaphorical (or at least non-metaphorical expressions cannot be identified) or else the difference is only one of degree and very largely a matter of individual attitude. It would be better perhaps to say that one of the commonest ways in which vocabulary is extended is extension of meaning by analogy, and that " metaphor " is the name that we give to this extension when it is so blatant that we notice it. A metaphor is " alive " for us in proportion as we are conscious of the original meaning while accepting the extension ; but this consciousness differs from one person to another, and even in the same person from one occasion or context to another.

I feel that Mr. Britton still hankers after the mathematician's ideal of a language as a system of symbols with meanings fixed by definitions.[3] But this is not the nature of a language in the sense of a social instrument of communication. Certainly there are special uses of language (namely where words are used partly as counters for calculation) in which some words function simply as abbreviations for longer phrases (the " definitions ") and their meanings are then fixed so long as they are being used in that way ; such is the use of words as technical terms in the sciences. But these are abnormal (though certainly not improper) uses and operate only within the framework of the normal use of language, for all technical terms must ultimately be defined by the use of words whose meaning is known without definition. In the natural use of language words do not stand for precise meanings,

[1] *Analysis* 7.2 (June 1940), pp. 40ff.

[2] P. 41. But contrast footnote 2 on p. 40.

[3] I own that it is rather unfair to pursue Mr. Britton for this when there are so many worse offenders.

but only offer hints which a hearer must interpret by intelligent guesswork. Somebody utters a sentence and we seek to understand what he means by it ; knowledge of the conventions of the language tells us, not that just one thing is " the proper meaning " of this sentence, but only that in a large range of possible meanings there is an order of preference, some being more likely than others, while an infinite number of meanings are so improbable that they may reasonably be called impossible ; out of all the possible meanings we have to guess which the speaker intended by the use of any evidence at our disposal. Commonly we do this immediately, for commonly we know what sort of thing a speaker wants to say even before he says it. But sometimes it may take a moment's thought ; for example, by the question " Were you at Oxford ? " I shall normally understand " Were you an undergraduate of Oxford University ? ", but I can easily imagine circumstances when, in conversation with a fellow philosopher, I might need a moment's reflection to guess whether he meant this by it or " Did you attend the Mind Association and Aristotelian Society joint session at Oxford in 1938 ? ". And sometimes in reading a philosophical book (particularly the work of a representative of a school of thought with which I am out of sympathy) it may require an exercise in speculative intellectual biography to get the author's meaning ; out of all the meanings which the passage might possibly bear I can only guess which the writer intended by trying to think for myself along the lines on which his mind was working and thus to discover what sort of thing he would be wanting to say.

Graphically expressed (for those who find visual images helpful), the meaning which belongs to a word (which we know by knowing the language) is not a point but an area, somewhere within which we shall find the meaning intended by any particular occurrence of the word. And the boundaries of this area are indefinite and extensible. That this should be so follows inevitably from the smallness of any vocabulary in comparison with the infinite variety of circumstances which have to be coped with linguistically. Suppose a philosophical Esperanto constructed according to the mathematical ideal, with a precise sense defined for every word, and suppose it actually adopted as a language by a community : before it had been in regular use twenty-four hours its words would begin to develop extensions

of meaning not provided for in its author's definitions. Even a vocabulary as large or larger than the whole New English Dictionary could only provide for circumstances that have already arisen in the past ; it could make no provision for the continuous series of new scientific discoveries, new technical inventions, new political and social developments. And the number of words which a person has actually at his command for speaking at any given moment is commonly even less than the number that he would understand if heard or read ; we all know the experience of " being at a loss for a word ", although the word that we need is one with which we are perfectly familiar. When for any reason we are short of a word to express a meaning that we wish to convey, we force some other word to act as a substitute on the strength of some more or less remote analogy. And this is not a misuse of language but its natural use. It is a breach, indeed, of the courtesies of speaking and writing to put upon a hearer or reader a burden of interpretation which might have been avoided, so that we should not use an expression which could easily be misunderstood if we can find another which leaves less room for misunderstanding in its context. And perhaps we owe a moral duty to posterity not to impoverish the language by habitually extending the meanings of words unnecessarily in such a way that useful differences might become obliterated. But the primary purpose of language is simply to convey our meanings, and, if this is achieved, subject to the above limitations, it cannot be said that language has been misused.

Almost all neologisms, even technical terms, are introduced in this way by extension, not by definition.[1] Such cases as the names of new chemical elements, introduced by quasi-ostensive definition (" If you perform such-and-such operations, you will find a metal of such-and-such a character ; we will call this *molybdenum* "), are the exception. The first engineer to use the term " sparking-plug " probably never offered any explanation of what he meant by it. Given the context of an internal combustion engine electrically ignited, it would be immediately evident what thing was intended, from its resemblance to other things called " plug " in shape and in being screwed into a hole. In fact what is most commonly introduced by definition is not a

[1] Addressing an audience acquainted with some other language we may alternatively introduce a foreign word. Borrowing is the principal means of extending vocabulary after analogy, but I neglect that here.

new term or a new meaning, but only a restriction imposed for the purposes of a particular discussion on an earlier (actual or possible) natural extension. I make a technical term, not by inventing a new word or even by giving an old word a new sense, but by singling out one of the senses in which a word might already be understood and announcing that, in this context, I am not going to use it in any other.

Now is not this process of extension by analogy essentially the same as what in literary criticism is called " metaphor " ? Metaphor is simply the application to one thing of a name properly (that is, in normal usage hitherto) belonging to something else, on the strength of some more or less remote resemblance connecting them. (Mr. Britton, following Dr. Richards, observes quite correctly that it need not be a resemblance between the things themselves ; it may, for example, be a resemblance between our feelings with regard to them ; but this does not affect the issue.) It is true that metaphor (in this sense) may be used for two almost diametrically opposite purposes. Whoever first introduced the term " sparking-plug " was only making use of a resemblance in order to speak of something for which language otherwise lacked a name ; the more immediately obvious the resemblance, the better to his purpose, which was to be understood. A poet, on the other hand, uses a metaphor to *point out* a resemblance, perhaps a very subtle one, perhaps several at once[2] ; if the resemblance were obvious to anybody, his metaphor would be " stale " ; on the other hand it ought to be comparatively obvious what he is talking about, or the whole point of his observation will be missed. (Thus in Mr. Britton's example, " pale silver-proud queen-woman of the sky ", we must already have guessed that he is talking about the moon.) Perhaps it might be convenient to restrict the term " metaphor " to metaphors used in this latter (the poetic) way, and I fancy that the possibility of such a usage lies at the back of Mr. Britton's conviction that there can be absolutely non-metaphorical expressions. But this is not the way in which Mr. Britton is actually using the term. He is concerned with logical terms such as " consequence," " implication," " opposition " and the like,

[2] This *may* be instrumental to the ulterior purpose of attracting to the " tenor " of the metaphor the emotional attitude naturally aroused by the " vehicle ". But I think it a mistake to assume (as contemporary philosophers often seem to do) that the only distinctive object of poetry is to stir the emotions.

and these are metaphorical only in the sense that they originated in extension by analogy. Whoever first introduced them did not wish to point out a resemblance but only to make use of it.

A metaphor is " alive " for us so long as we are conscious of it as metaphorical—remember the original sense even in the act of accepting the extension. It is moribund as soon as the extension becomes so familiar that we may accept it without thinking of the original sense. But, so long as the original sense is one with which we are also familiar, the metaphor may always come to life again if anything in the context or circumstances (or even the chance vagaries of our thought) reminds us of that sense. (For example, in the sentence " I went fishing last week and caught a cold " a very dead metaphor may come to life with ludicrous effect for a hearer who happens to have been expecting the name of a kind of fish.) A metaphor is only completely dead for someone who has wholly forgotten the original sense of the expression or never known it. (Thus " burke " as a synonym for " stifle " in the phrase " to burke discussion ", which was a very live metaphor for our ancestors, has become quite dead for most people now, when hardly anybody thinks about the Burke and Hare murders of more than a century ago.) Thus we get what might be called " philologist's metaphors "—expressions which were once metaphorical but are now not so except for those who are acquainted with the past history of language. Such in particular are expressions borrowed from one language into another, which were metaphorical in the first language but never in the second. For example, the word " kindergarten " may still be metaphorical sometimes for Germans, but not for Englishmen who know no German. It is interesting that most of Mr. Britton's examples are metaphors only in this antiquarian sense, being borrowed from the Latin in which they were already logical terms. It is true that most of them also occur in English with non-logical senses, but to the average Englishman this can only be a brute fact about the language as he finds it (like the fact that " to lie " means either to be recumbent or to tell an untruth)—not a metaphorical extension. To see the connection, for example, between " subject " in the logical sense and in the expressions " a British subject " or " subject to asthma " requires not only some knowledge of Latin but a quite respectable acquaintance with the history of logic.

In the light of these observations we may perhaps find Mr. Britton's article rather unconvincing. The burden of his argument is that mistaken theories in logic are encouraged by the fact that the common logical terms are metaphors derived from non-logical sources. This may be so—I think that sometimes it is—but, in order to prove his point, he would have to show in each particular case that the expression is still generally felt as a metaphor (for otherwise how could it mislead ?), and it seems to me that in most of the cases which he actually quotes he would fail. But I am not really concerned with this point here. I find much more interesting the point which he expressly refuses to make, though things which he observes seem to lead straight towards it—namely, that all language is metaphorical more or less. Though it always makes a simpler picture to draw sharp distinctions between X and non-X, our picture is generally more accurate if we recognise gradations of X-ness over the whole field. It does not matter in which of three possible ways we choose to employ the term " metaphor ". Even if (1) we confined it to metaphors used in the poetic way—that is, to transferences of words made for the purpose of pointing out a resemblance—it would often be difficult to decide whether an expression was metaphorical or non-metaphorical, for there are many kinds of speaking and writing which are half informative, half poetic, where a not too subtle resemblance is used to provide language with a new word, and yet part of the end in view is to call attention to the resemblance ; as if I should speak of someone " pecking away at the typewriter ", where it may be hard to decide how far I am using the resemblance of his action to that of a pecking fowl simply to supply the lack of another word to describe the action, and how far I actually want to point out that resemblance. If (2) we restricted the term " metaphor " to " live " metaphors, we should have to allow that an expression which was non-metaphorical for one man might always be a metaphor for another, depending on his knowledge and even on the momentary direction of his thought. If (3) we use the term as Mr. Britton does, when he calls the word " inference " a metaphor from carrying and " subject " a metaphor from throwing,[3] which can only mean that their present senses are the result

[3] P. 43: " The ' leading ' words, *induction*, *deduction* ; the ' throwing ' words, *subject* and *object* ; the ' carrying ' words, *inference*, *reference*, and *relation*."

of a series of analogical extensions in the remote past, then there may indeed be some words in some languages which are non-metaphorical—that is, which are still used in the senses which Adam gave to them in the Garden of Eden—but we have no means of telling which words they are, or whether there are any of them in any particular language, such as modern English. And it is much more likely that (with the obvious exception of a few words known to have been invented, like "molybdenum") there is not a single word or expression in present-day use which is not, in this antiquarian sense, metaphorical—that is, in the sense that, if only we could trace its history far enough back, we should find that its present meaning originated in an extension of an older meaning, though that older meaning may be now completely forgotten.

University of Leeds,
September 1940.

ON THE JUSTIFICATION OF INDUCTION

By C. H. WHITELEY

WHY does induction need to be "justified"? It is tempting to reply that success is a sufficient justification: certainly those who have used the inductive type of argument in reaching true and important conclusions are not going to be much worried by its failure to produce a philosophical identity card. We cannot help passing in our beliefs from the observation of particular instances to the assertion of a general rule, and nothing that philosophers say will prevent either themselves or other people from doing it. Yet the argument that a method of reasoning which has been successful in the past is likely to be successful in the future is itself an inductive argument, and open to the same challenge as any other. That challenge arises from the doubt whether this generalising tendency is a process of reasoning at all, which we can call valid or invalid, sound or unsound, correctly or incorrectly performed, or a mere psychological disposition possessing psychological persuasiveness but not logical cogency. If we take the latter alternative, then there is no problem of induction and no justification of it need be looked for. At the same time we are precluded from distinguishing between reasonable and unreasonable inductive arguments, and we must say that the difference between the careful scientific thinker who bases his conclusions on a wide array of systematised evidence and the stupid, or ignorant, or passionate thinker who hastily jumps to conclusions is only a difference of psychological type with which logic has no concern. And this seems most unplausible.

It doesn't help to tell us that it is all a matter of how we use words; that the words "reasonable," "probable", "valid", etc., are used in such a way that an argument like "Whenever I have heard a throbbing noise of this sort during the night there has been a German bomber about; I hear a throbbing noise of this sort now; therefore there is probably a German bomber about" is called a "reasonable" or "valid" argument. The question is not whether we are to apply certain terms to arguments of this kind, but whether we are to use them and trust them; whether the "validity" and "invalidity" here referred to are the same sort of thing as the "validity" and "invalidity"

of deductive arguments; whether there is an inconsistency between accepting the premisses of my specimen argument and still flashing your torch about as if there was no danger.

There is another kind of theory on which there will really be no problem to solve. If we hold that some general inductive principle, or particular instances of such a principle, are just straightforwardly self-evident and cannot be denied without self-contradiction, again there will be no more to be said.[1]

It seems to me that there is a good deal more to be said. In the first place, can we apply the words "valid-invalid", etc., to merely probable inferences in just the same way as to deductive inferences? Take these inferences. "Most negroes have broad noses, and Johnson is a negro, therefore Johnson has probably got a broad nose." Or "90% of negroes have a nasal index above 90, and Johnson is a negro, therefore it is nine to one that his nasal index is above 90." Or again, "If I have a bag containing 90 white balls and 10 black ones, and I draw 8 balls at random, it is very unlikely that they will all be black". Conversely, "If I have a bag containing 100 balls, and I draw out 8 at random which are all black, it is very improbable that most of the remainder are white". These conclusions are derived from (more or less precise) numerical calculation, a counting of "chances" or "possibilities" or "alternatives"; and the conclusion seems to me mathematically or logically inescapable. Now, whatever may be the psychological origin of our tendency to perform inductive generalisations, logically they seem to me to be of the same type as the last of these examples, and to have the same kind of cogency. When I have observed a long series of Xs which have all been Y, it is extremely unlikely that most of the remaining unobserved Xs will be not-Y, just as, if I draw a long series of black balls from a bag, it is extremely unlikely that most of the remainder will be white: and there will be an appreciable probability that the next X, that most Xs, that all Xs, will be Y (of course an inductive generalisation needn't

[1] I cannot see much difference on this point between Mr. Lewy (*Analysis* VI 5 and 6) and Mr. Russell whom he criticizes, unless Russell meant to assert that his inductive principle is used as a *premise* in inductive inferences, and that particular inductive conclusions are deduced from it (of course people have said this about the principle of the Uniformity of Nature). But I am not convinced that Russell meant anything so silly. His principle expresses the form common to particular inductive arguments; and of course he is right in saying that unless the form is valid the particular arguments cannot be valid either.

be universal). If I knew (exactly or approximately) the total number of Xs, I could work out (exactly or approximately) the numerical value of these probabilities. The longer the series of observed cases the greater the probability. It is, I think, only because of the extreme improbability of a long run of coincidences that inductive arguments—" simple enumerations "—are logically cogent. An inductive argument is an argument of the same sort as, say, the argument for the occurrence of telepathy or precognition, where you have to compare the number of agreements recorded with the number which might have been expected " by chance ". Again, the Method of Concomitant Variation, though it does not rest on the cataloguing of likenesses but of systematic differences between cases, may yet be legitimately grouped among inductive arguments, and indeed may be a particularly strong form ; for to the precise numerical relations which are found in some laws of physics the number of possible alternatives is enormous.

But this is only half the story. Reasoning of this kind is cogent only so long as you make certain assumptions—assumptions which I wrapped up in the proviso that the selection of balls must be a " random " selection. For instance, if the black balls are much lighter than the white ones and tend to stay on top of the bag when it is shaken, the argument will not hold. If it is to hold, there must be no causal connection between being a black ball and being drawn out of the bag. Likewise in an inductive argument, there must not be, between the observed Xs on which the argument is based and the unobserved Xs to which it is to be applied, any difference which is causally connected with the property Y which is the subject of the generalisation. Of course, if there were no differences at all between the observed and the unobserved cases, we could apply our argument with complete confidence. Equally of course, this is never so ; it isn't even logically possible, for any two cases must at least differ in place or in time. Since there always are differences, to validate our inductive argument we do require the assumption that differences are not relevant to the conclusion of the induction. Thus the usual description of inductive arguments as " simple enumerations ", and the symbolisation of them in the form " A_1 is B, A_2 is B, A_3 is B. . . . therefore all As are B ", and the like, are inadequate and misleading. For the main

difficulty in inductive reasoning is to settle the definition of your class A—to settle which features in the observed situations are to be looked for and used in inference in further cases, and which are to be ignored as irrelevant ; that is, to settle when a number of cases constitute a group similar enough to give a basis for generalisation, and which other cases can be referred to the same group. My Sealyham, your Pekinese, Robinson's Yorkshire terrier, etc., are all addicted to barking. If you then conclude " All dogs bark ", you are selecting certain features common to these cases and ignoring others. Can we extend the induction from English to foreign dogs, from small to large dogs, from full-grown to puppy dogs, from live to dead dogs ? Or should we do better to include some of these conditions in our generalisation, and say " All live English dogs bark " ? If I have data about the physical characteristics of male undergraduates of Birmingham University in the Faculty of Arts whose names begin with A, B and C, can I treat them as giving me information about female undergraduates ? Leeds University ? the Faculty of Medicine ? names beginning with X, Y and Z ? Englishmen ? mankind in general ? All these inferences can be put in the customary inductive form : but obviously they are of very different grades of reliability (and incidentally of different reliability for different characters ; e.g. the sex difference is important for stature but not for blood-groups). The difficulty is more obvious here than in the case of the barking dogs, because there a lot of the work has already been done in the linguistic tradition which fixes the meaning of the word " dog " ; otherwise it wouldn't be at all obvious that generalisations about Pomeranians also applied to Great Danes. Thus the particular observed instances are never the whole of the reason for asserting the conclusion. " All observed dogs bark ; therefore probably all dogs bark " is not a complete argument. And so a large part of the task of inductive investigation is to establish which factors in a situation are causally relevant to a given element in the situation, and which are not. Hence some logicians have treated elimination as the whole function of inductive argument. It seems to me rather to pave the way for the induction proper. Once I have assured myself that difference of sex has no effect on the distribution of blood-groups in a population, I can apply my data about blood-groups among male undergraduates to the females.

And now, how are these irrelevancies established? The only possible answer appears to be, By induction. It is on the basis of information relating to other populations that I reach my conclusion about the relation between sex and blood-groups in this one. So the whole process begins to appear circular. We can execute no valid induction until we have proved certain characteristics of the situation to be irrelevant, and we can prove this only by valid induction. I do not think that this circularity can be wholly avoided. If we never made any unproved assumptions we could never start to reason inductively at all. In fact, when we begin critical reflection on our own thinking, we find ourselves making all sorts of assumptions whose logical foundation in the first place must have been pretty frail; assumptions which we go on making as long as they are not refuted by the facts. And these, as well as particular observations and logical principles, have their place among the foundations of science. Not that there are any assumptions which you cannot call in question; but you cannot call them all in question at once.

So the uncertainty attaching to inductive arguments is derived from two separate sources. On the one hand, the evidence for an inductive conclusion is in any case not sufficient to prove that conclusion, but only to render it to a certain degree probable. On the other hand, the argument is valid only if we make certain assumptions in each particular case, assumptions which themselves are more or less dubious (I say "more or less"; but it is impossible to give a numerical value to, say, the probability that Birmingham undergraduates form a random selection from the class Englishmen). Something of the same sort is met with in the application of deductive reasoning. Pure mathematics is infallible: but when we apply it to sums about papering rooms we have to make a lot of assumptions about the reliability of measures and measurers and the physical characteristics of walls and wall-paper.

University of Birmingham
October 1940.

INDUCTION AGAIN

By H. WALLIS CHAPMAN

I FEAR that Mr. Lewy's short and easy method with the problem of induction will hardly stand. He says that " Whenever I have heard barking in the past there has been a dog somewhere near, I'm hearing barking now, but I have no reason whatever to believe that there is a dog somewhere in the neighbourhood " is self-contradictory ; but is it ? It will, I think, be admitted that if a proposition is self-contradictory the contradiction cannot be removed by adding another proposition ; in symbols, if p is self-contradictory so is $p.q$. Now add to Mr. Lewy's proposition " I am listening to a gramophone playing a record which reproduces the barking of a dog ", and where is the contradiction ? It is not between the addition, and " whenever I have heard barking in the past there has always been a dog somewhere near ", for there is no contradiction if it is the first time I have heard such a record, which must be true on one occasion.

Can we then amend the proposition so as to do the work required ? I think not ; even if we say something like " Whenever I have heard barking there has always been a dog in the neighbourhood ; I'm hearing barking now, and I have no reason to believe that there is a gramophone or a very clever mimic or . . . but I have no reason to suppose there is a dog in the neighbourhood ", we cannot be sure that we have enumerated all the necessary exceptions, and if we have not it is always possible that there is a way of removing the contradiction. To obtain any semblance of self-contradiction we must include in the sentence a specific statement that the alternatives have been exhausted. Thus " Whenever I have heard barking in the past there has been a dog somewhere in the neighbourhood, I am hearing barking now, and I have no reason to believe that there is a gramophone in the neighbourhood, or a very clever mimic, or anything else which can produce barking except a dog, but I have no reason to believe that there is a dog in the neighbourhood." This is much more like a contradiction, but where is it ? " I have no reason to suppose that there is anything which can produce barking except a dog, and I have no reason to suppose that there is a dog " is simply equivalent to " I have no reason to suppose that there is anything which can produce barking " ;

it does not even assert that a dog can produce barking, it only suggests it ; if it were to turn out that a dog could not produce barking the truth of the statement would not be interfered with, though, taken in conjunction with the other member of our original statement, " I am hearing barking now ", there would be at least a semblance of contradiction. The contradiction then, if any, lies in " I'm hearing barking now, and I have no reason to believe that there is anything which can produce barking ". But now the dog has disappeared ; the addition of the words " Whenever I have heard barking in the past there has been a dog in the neighbourhood " neither enhances nor reduces the contradiction, and the existence of the contradiction is no evidence about the dog.

But is even this form of the sentence self-contradictory ? It depends on our analysis of " anything " and " produce". If we admit that " barking ", or the experience known as " hearing Barking " may occur with no regular connection with any other experience there is no self-contradiction, for if there is no such correlation, " anything to produce BARKING " is unmeaning, a name of nothing, since " to produce barking " implies " to be regularly connected with barking ", whether that is the whole of its meaning or not. It may be objected that this is inconsistent with the clause I have omitted " Whenever I have heard barking in the past there has been a dog in the neighbourhood ", but this assumes that a regular connection in the past must extend into the present and future, which can be denied without self-contradiction. Again the word " anything " may imply a similar assumption ; if we read it as any*thing* so that " *thing* " implies something (thing not italicised) including recognisable and recurrent features, the possibility of " things " in this sense implies regular connections, which, as I have said, can be denied without self-contradiction. On the other hand, if " anything " is not so understood, " anything to produce barking " contains no reference to anything but barking, and our sentence becomes, in effect " Whenever &c. I'm hearing barking now, but I have no reason to suppose that there is barking ". This is clearly self-contradictory, but again the contradiction has nothing to do with the dog. On any hypothesis as the contradiction becomes more explicit it becomes less available to establish that connection between two types of experience which it is the office of induction to assert and the problem of induction to justify.

A NOTE ON STATEMENT AND ASSERTION

By Joshua C. Gregory

A GRAMOPHONE emits the words " there is a smut on your nose ". A surprised auditor might rub his own nose automatically because *for him* the gramophone makes a statement. This, and other sentences recognisable as statements, are statements for those who understand them however the statements are made. " There is a smut on your nose ", by stirring a meaning in the auditor, makes him contemplate a certain state of affairs. This convenient, if uncouth, phrasing expresses the effect of the sample sentence on an auditor who understands English.

If a budgerigar says " there is a smut on your nose " the sentence is presumably not a statement for the bird, though it is still a statement for the human auditor. If a human being, who understands English, is the enouncer, the sentence is a statement both for the auditor and himself.

No one would suspect the gramophone, and few would suspect the budgerigar, of presenting a sample statement. Any statement might be presented as a sample by the human enouncer, and "you have a smut on your nose" is actually a sample statement in this present context. The sentence, which is a statement whether it is spoken or written, has not been *asserted* about any smut on any nose of any person.

It seems clear that the gramophone cannot assert to the auditor that he has a smut on his nose—or that he has not. Since the sample sentence is no statement for the machine, the gramophone cannot doubt or deny or check or assert it. The budgerigar, presumably, is in these respects like the gramophone. The human enouncer, since the statement for the auditor is also a statement for himself, can doubt or deny it. He can also *assert* it, and he most probably would assert it if he said it at all. The auditor can accept the statement as an assertion to be believed or doubted or checked ; he can also accept it as a sample statement, and he can, if he is so disposed, admire its precision, or he may if he is vain, be disturbed by its possible truth.

The meaning of " lobster " represents a power in the sign to direct the conscious and unconscious course of minds for whom the word is significant. The sentence " when lobsters are boiled they turn red " has a similar power. *Statement* is involved

in the power and meaning of the latter. The sentence has this power to produce a meaning with stating quality in responsive minds however it is presented to the auditor or reader. It has this power whether it is emitted by a gramophone, which cannot assert it, or enounced by a human being who does not make it as an assertion.

When a philosopher affirms " there *is* a smut on your nose ", the accentuated " is " seems to include an assertiveness by the speaker in the statement. Bertie Wooster would say " there jolly well is a smut on your nose ! ", and his " jolly well " seems to state an assertion.

The assertive attitude, or the non-assertive attitude, of the speaker or writer may be variously indicated or diagnosed. The statements in an essay are so usually intended and accepted as assertions that the stating quality, or power, of the sentences is not usually distinguished from their assertion by the writer. It is not usually necessary to distinguish them because writers who make statements usually do assert them. A speaker also is usually presumed to assert his statements. Sample statements that are not intended to assert disclose the difference between the stating quality, or power, in a sentence as such, and the assertiveness of the speaker or writer. The statement may be false whether it is asserted or not, though its falsity is less important if it is not asserted. Also the statement may be presented as a sample of the false, or true. " All grass is red " has a stating quality, or power, in the sense that the meaning that it stirs in a responding mind involves recognisable statement. This stating quality, or power, may be connected with what Lord Russell once called " assertion in a non-psychological sense ". Though this connection may be dubious, the stating quality, or power, of a sentence does seem to be distinguishable from assertion proper. The assertiveness of the speaker or writer has its own complexities and problems, but sentences do seem to be statements, as it were, in their own right. Sentences state, when they do state, because they affect minds in a " statement " way ; their stating quality, or power, is compatible with various mental attitudes, assertive or otherwise, towards the statements themselves.